SAN FRANCISCO

CONGESTION MANAGEMENT PROGRAM 2001

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CHAPTER 1

BACKGROUND AND PROGRAM OVERVIEW

Key Topics:

- **Background**
- **Congestion Management in San Francisco**
- **Program Overview**

1. Background

Purpose of the Document

The 2001 San Francisco Congestion Management Program document is designed by the San Francisco County Transportation Authority (the Authority) to serve the following purposes:

i. Comply with state law requiring biennial adoption of a Congestion Management Program (CMP) and submittal to the Metropolitan Transportation Commission (MTC) for a finding of conformance. A conformance finding ensures the City's continued eligibility for additional state fuel tax revenues authorized by CMP legislation, as well as state and federal funding eligibility for key transportation projects.

ii. Describe the San Francisco CMP and serve as the main and most current reference and guidance document for San Francisco agencies involved in activities related to congestion management.

iii. Serve as the basis for the congestion management work program and schedule to be followed during fiscal years 2001/02 and 2002/03 to develop specific technical or policy guidance in areas of the Program that require it.

iv. Establish and describe interim policies, procedures, or methods to be used until final guidance is available as described in iii) above.

Document Organization and Approach

The document is organized in chapters and follows MTC's *Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan*, per MTC Resolution 3000, last revised May 11, 2001. There is a separate chapter devoted to each of the elements required by the CMP legislation. For the complete text of MTC's guidance please refer to Appendix I. The text of the 1999 San Francisco CMP was used as a general guide, and was retained where still current.

For chapters where technical issues require further development there is an introductory section describing the issues yet to be resolved, followed by a section detailing interim procedures. A final section lists work program items and describes the proposed approach for developing final methods or further guidance. Because the CMP is a biennial document, final procedures and other revisions developed during fiscal years 2001/02 and 20002/03 will be adopted by the Authority Board as amendments to expand or supersede the appropriate sections of the 2001 San Francisco CMP, and will go into effect after Board adoption.

The 2001 CMP is a minor update to the 1999 CMP, focused more on updating data and other information rather than making significant policy changes. Development of the 2001 CMP document update was primarily the responsibility of the Authority. The information in Chapter 4: Level of Service Monitoring is extracted from the report prepared by Abrams Associates, which conducted the monitoring of the CMP network. That report is available from the Authority as a separate publication. The Department of Parking and Traffic, Department of Public Works, Municipal Railway Company, Planning Department, MTC, regional transit operators and the Bay Area Air Quality Management District provided input to the Trip Reduction and Travel Demand and Multimodal Performance Measures chapters of the CMP.

Origins and Intent of the CMP Legislation

The requirements for a Congestion Management Program were established in 1989 as part of a bi-partisan state legislative package, known as the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century (AB 471). The actual requirements for CMPs became effective when voters approved Proposition 111 on June 5, 1990. AB 1963 (Katz) in September 1994 and AB 2419 (Bowler) in July 1996 introduced further changes and modifications to clarify various aspects of CMP law. In addition, the passage of AB 298 (Rainey), effective January 1, 1997, made the CMP exempt from the California Environmental Quality Act. For the complete text of the CMP legislation, see Appendix II.

The state legislation not only provides for increases in transportation funding, but also makes significant changes in the requirements for planning and programming of transportation projects to be funded from these sources of revenue. The goal of the legislation is to tie transportation funding decisions to measurable traffic congestion relief, local land use decisions and their impact on the transportation system, and implementation of transportation control measures to meet air quality goals.

The CMP requirements are the legislature's response to the growing traffic congestion phenomenon experienced by all urbanized areas in California. It is widely perceived that traffic congestion is outpacing the traditional transportation planning process in its ability to provide adequate solutions. In San Francisco, with its high-intensity land uses and extensive transit network, this traffic congestion phenomenon manifests itself differently, posing challenges to the interpretation of the CMP mandate in the City, but for the majority of the state's highly suburbanized metropolitan areas it is a reality, and it has its roots in the following four facts:

a. The currently prevalent low-density suburban growth pattern throughout the state's metropolitan areas does not lend itself easily to cost-effective transit service and is therefore highly dependent on the automobile and on the freeway system. In short: *transit does not work well in the suburbs.*

b. Because of the political volatility of pricing strategies (e.g., tolls, paid parking at work sites) and the limited success of ridesharing strategies (i.e., carpooling and vanpooling) in sprawled suburbs, most automobiles still carry just one person, regardless of trip purpose or time of day. The result is that any new roadway facilities that are built are, by definition, inefficient. Even when full of cars they carry only a fraction of the number of people they could accommodate. In short: *freeways full of solo drivers provide inefficient carrying capacity of highway investment.*

c. These high-cost facilities, which are designed for the automobile but do not maximize the number of *people* carried, result in a high cost per person transported. In short:

building freeways to address transportation demand is not cost-effective.

d. Because of the scarcity of land for transportation facilities, rising construction costs, and environmental and air quality constraints, ever growing levels of capital investment are needed in order to build roadways. This, combined with a deteriorating economy and continuing erosion of transportation funding, results in fewer and fewer new miles of roadway facilities being built every year to address a growing demand for transportation. In short: *it's hard to keep up with transportation demand by building freeways, and we can't afford them either.*

For most of suburbanized California the inability to keep up with transportation demand lends credibility to the prospect of land development coming to a halt because of increasing traffic congestion and deteriorating accessibility. Consequently, the CMP legislation aims at extracting more productivity out of the existing transportation infrastructure while encouraging more efficient use of scarce new dollars for transportation investment, with the intended result of fending off congestion, improving air quality, and ultimately allowing continued land development where feasible. In order to achieve this, the CMP law mandates a coordinated strategy based on five main concepts:

a. Require more coordination between federal, state, regional and local agencies involved in the planning, programming, and delivery of transportation projects, programs, and services;

b. Favor transportation investments that provide measurable and quick congestion relief;

c. Create a definite link between local land use decisions and their effect on the transportation system;

d. Favor transportation solutions that are less dependent on the single-occupant automobile, and improve air quality; and

e. Place emphasis on local coordination and responsibility by requiring the designation of a Congestion Management Agency in each urban county in the state.

2. Congestion Management In San Francisco

Applicability of the Concept

The main impetus for the CMP legislation derives from worsening *suburban* transportation conditions, caused by land use patterns that perpetuate over-reliance on the private automobile. Although land redevelopment opportunities exist (e.g. Mission Bay), San Francisco is essentially built out, with an extensive transit network and long standing policies and programs to encourage a balanced and truly multimodal transportation system. Therefore, reinterpreting the congestion management goals and requirements, within the constraints of State law, is necessary for them to work for San Francisco. The City's transit first policy, for instance, presents a challenge to CMP implementation: in San Francisco we tolerate a certain level of traffic congestion in order to encourage transit ridership. The San Francisco General Plan specifically discourages roadway capacity increases, stating that:

> "The existing vehicular capacity of the bridges, highways and freeways entering the city should not be increased and should be reduced where possible." (SF General Plan, Transportation Element, Objective 3, Policy 1).

Congestion management concepts may be at odds with this policy approach if we interpret congestion management as requiring improvements to the throughput of *cars* in the roadway network. However, if we rethink congestion management as maximizing *people* throughput, that is, if we re-interpret congestion management requirements as an opportunity to improve overall mobility in the City, then we have opportunities to capitalize on the City's significant supply of transit services, and on its relatively pedestrian-friendly environment. San Francisco can show good performance in achieving congestion management goals if the measures used in determining performance are relevant to the City's transportation and land use realities. Congestion Management Program activities for the next two fiscal years will include the identification of issues such as this one, which can be pursued as part of the Authority's agenda for legislative change.

The City's Congestion Management Track Record

San Francisco has had considerable success in managing travel demand, especially with respect to control of automobile access to the downtown area during peak commute times. Many of the transportation demand management and land use regulation measures described in Chapters 6 and 7 of this document have been in place over the last twenty years and have allowed major growth in downtown trip-making without significant deterioration in operating conditions (or traffic levels of service) for downtown streets. This success is clearly the result of the *combined* application of several major policies, in particular:

- parking pricing and supply policies which discourage driving into downtown;

- transit service investment policies to provide and maintain local travel options that are *truly competitive* with the private automobile; and

- land development policies that gave transportation system investments a chance to keep pace with the growth in trip-making.

In addition to these policies, other factors were essential to the City's ability to absorb the extraordinary levels of employment growth experienced between 1970 and 1985. Such factors include:

- *the City's historic record of investment in local public transit* - The existence of high levels of transit service and coverage within the City provided a credible option to driving, and made politically viable the application of parking pricing policies, and development impact mitigation fees;

- *the BART system and the demographics of downtown employment* - A large portion of employment growth in this period was absorbed by suburban residents. The opening of BART in 1973 constituted a major expansion to transit capacity with two key features: a) excellent regional access to stations within walking distance of most downtown employment locations, and b) no financial burden to the City for providing adequate transit coverage at the residential (suburban) end of the BART trip; and

The City's winning strategy was a truly balanced multi-modal transportation strategy, which allowed each travel market to be served by the transportation modes best suited for it.

- *the City's investment in its street system* - San Francisco's dense grid of streets and arterials is seldom recognized as the major transportation asset it is. It provides multiple travel route options, keeps local trips from clogging the freeway system (as is so often the case in the suburbs) and enhances the system's ability to recover quickly when congestion problems occur.

Future Strategies

The above discussion of the City's track record highlights the importance of maintaining travel *options* as an essential strategy not just to prevent a worsening of congestion but also to improve mobility.

Understanding demographic trends is important, as well, in charting future action. Reflecting changes in the economic structure of the region, as well as national trends, the 1970s and 1980s exhibited a development boom that characterized the growth of the City's downtown area. This boom was followed by a time of modest employment growth until the mid 1990s. By the late 1990s, San Francisco and the rest of the Bay Area experienced another employment boom accompanied by an increase in construction.[1] Even so, San Francisco residents are out-commuting to take advantage of work opportunities in other Bay Area counties in increasing numbers: today the number of San Francisco residents traveling daily to work in Santa Clara County is nearly double the number of Santa Clara County residents employed in San Francisco.[2] In addition, nearly 40% of all drive-alone work trips into downtown come from within San Francisco.[3] These trends are disturbing at a time when the fiscal crisis at the State and local governments is resulting in curtailment of funding for transit operating expenses. As transit faces these problems, enriching the City's inventory of available transportation options will be a key strategy for congestion management in San Francisco.

Maintaining transit service levels is essential to ensure that transit remains a viable option to the private automobile, but there are significant travel markets within the City which are only marginally suited for transit service and cannot be captured by transit without major operating expense. Other trips simply cannot be attracted to transit. Ridesharing (carpooling) strategies and non-traditional transit options (zonal express bus service, demand responsive, etc.), cycling and walking may need to be explored as alternatives to drive-alone in some of these cases.

In addition to ensuring compliance with the State's congestion management requirements, improvement of congestion conditions on city streets is necessary to avoid further deterioration of transit travel times. Therefore, San Francisco's congestion management activities will also need to focus on key improvements to congested roadway facilities. Whereas the program's primary emphasis on transit reinvestment, with new service proposed in redeveloping areas, is not in question, street and roadway reinvestment will not be neglected. Particular attention will be paid to projects that improve the operating efficiency of the existing system, such as interconnection of traffic signals to improve

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[1] Commerce and Industry (Element of the General Plan, Eighth Annual Inventory), San Francisco Planning Department, 2000

[2] San Francisco to Santa Clara: 20,591; Santa Clara to San Francisco: 11,244 Source MTC 2000 trip tables (original validation of the model set called RVAL90)

[3] Daily drive alone work trips within San Francisco to downtown San Francisco: 30,238; total drive alone work trips to downtown San Francisco: 76,808; percent of daily drive alone work trips to downtown San Francisco from San Francisco: 39.4%. Source: MTC 2000 trip tables (original validation of the model set called RVAL90)

vehicular traffic flow, or signal pre-emption to improve the operating speed and reliability of transit vehicles. These projects are necessary not only to ensure that the current level of congestion does not worsen, but also to improve overall mobility, and help transit re-gain operating speed and retain its market share.

Congestion management activities during the next two fiscal years will include continued development of Strategic Analysis Reports (SARs). These are policy-level thought pieces aimed at facilitating policy-making relative to congestion management by describing systemic congestion and analyzing likely transportation outcomes taking into account transportation investment decisions and system performance outcomes. SARs are action-oriented documents used, for instance, to systematically identify potential travel markets, such as those described above, matching them with transportation options most likely to effectively serve them, and estimating their potential impact in alleviating congestion levels. Chapter 2 discusses the role of SARs in fostering early coordination by City Departments so that certain congestion management-related actions may be evaluated before they are implemented. Chapter 9 addresses the proposed use of SARs in the Deficiency Plan process. SARs could be developed on topics as wide-ranging as the congestion reduction potential of parking supply and pricing policies and alternative ways to measure congestion relief and mobility benefits for City residents. The number of SARs to be developed over the next two fiscal years will depend on the need for information to support policy-making, and on the level of effort required by the complexity of the topics chosen.

Further work to improve the measurement of performance of the multimodal system, to analyze CIP changes, and to improve forecasting of system performance impacts associated with transportation investments, policies and land use changes (via The San Francisco Travel Demand Forecasting Model) are discussed in Chapters 5, 8 and 10 respectively.

3 Program Overview

A. Mandated Program Components

The overall strategy embodied in the CMP legislation translates into the following statutory requirements, to be met by all urban counties in the state:

1. Development and adoption of the initial CMP and biennial updates. The CMP document must contain the following elements, which are addressed at length in the remaining chapters of this report:

    - A designated CMP roadway network
    - Traffic level of service (LOS) standards and a methodology for monitoring LOS on the designated CMP roadway network
    - Transit service standards
    - A multimodal performance element
    - A land use impact analysis methodology
    - A seven-year multimodal capital improvement program

2. Development of a common database and method for analysis of impacts of local land use decisions on the CMP network.

3. Designation of a Congestion Management Agency for the county.

In 1996 the Bowler bill (AB 2419) incorporated a provision establishing that CMP provisions would not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt a resolution electing to be exempt.

B. Changes to Transportation Fund Programming

The CMP legislation included the creation of new funding sources, as well as changes to existing fund programming mechanisms, tied to implementation of CMP requirements. The Authority at the local level and the MTC at the regional level have been empowered to make CMP conformance determinations affecting funding eligibility.

1. State Fuel Tax Increment: The CMP legislation established a 9-cent per gallon increase in the state's fuel tax. In order to receive these revenues, urban counties must annually be found in conformance with CMP requirements as described in sector A above, particularly the monitoring and reporting on congestion levels in the transportation network, and implementation of required CMP actions designed to avoid a deterioration of circulation conditions on the CMP network. In addition, the CMP document itself must be updated every two years.

2. Regional Improvement Program (RIP): These funds are programmed through the Regional Transportation Improvement Program (RTIP), which is developed and adopted by MTC, and subsequently adopted into the State Transportation Improvement Program (STIP) by the California Transportation Commission. In order to be considered for funding through the RTIP, transportation projects must be first included in the Capital Improvement Program of the CMP.

3. Federal Surface Transportation Program (STP) and Congestion Management and Air Quality (CMAQ) Program Funds: In 1992, the California legislature passed SB 1435, which reconciled the CMP programming process with the new Federal Intermodal Surface Transportation and Efficiency Act (ISTEA). As a result, projects seeking STP or CMAQ funds (continued under TEA21) must first be prioritized by each Congestion Management Agency as part of the development of their biennial Capital Improvement Program for the CMP.

C. Relationship to Ongoing Planning and Programming Efforts

Congestion management programs are a component of a larger set of ongoing transportation planning and programming efforts at the local and regional levels. The following documents are closely tied to the development and implementation of San Francisco's CMP:

1. Regional Transportation Plan (RTP): The CMP is instrumental in implementing the local portion of the regional transportation plan and must be consistent with it. MTC determines consistency among CMPs in the region. MTC makes these determinations as a part of the conformance finding process for CMPs.

2. Regional Transportation Improvement Program (RTIP): A seven-year transportation capital improvements program must be included in the CMP. For certain projects to be included in the RTIP, they must be included in the capital improvement program of the CMP. The CMPs are therefore a main source from which the RTIP's program of projects is derived.

3. City of San Francisco General Plan: According to the City Charter (section 3.524), the General Plan is a comprehensive, long-term, general plan for the improvement and future

development of the City and County. The General Plan includes maps, plans, charts, exhibits, and descriptive, interpretive, and analytical matter, based on physical, social, economic, and financial data, which together present a broad and general guide and pattern constituting the recommendations of the planning commission for the coordinated and harmonious development, in accordance with present and future needs, of the city and county. The General Plan also provides general information on topics such as transportation demand management measures that are addressed as part of the CMP. Chapter 8 addresses the Planning Department's role in making consistency findings for the CMP's Capital Improvement Program.

While the General Plan provides a general policy framework, CMP actions and policies may ultimately have an effect on the policies contained in the General Plan. However, State law does not require that the CMP be incorporated into the General Plan.

4. Air Quality Attainment Plans: MTC's Regional Transportation Plan is required by federal law to conform to the State Implementation Plan for improvement of air quality. Since the CMP must be found consistent with the Regional Transportation Plan, the CMP must therefore also conform to the provisions of the State Implementation Plan. In addition, the San Francisco CMP documents implementation of transportation control measures (TCMs) included in the Clean Air Plan adopted by the Bay Area Air Quality Management District pursuant to State requirements.

D. Coordination and Public Input

The 2001 San Francisco CMP was developed incorporating input from City departments, transit operators, MTC, Caltrans District 4, and the Bay Area Air Quality Management District. The Authority's Citizens Advisory Committee reviewed the updated chapters and recommended approval of the 2001 CMP at the October 24, 2001 CAC meeting. A public hearing on the Draft 2001 San Francisco CMP was held on November 19, 2001 and it was approved by the Authority Board on that date.

CHAPTER 2

CONGESTION MANAGEMENT AGENCY

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **San Francisco County Transportation Authority**

1. Legislative Requirements

California Government Code section 65089 (a), as amended, states "A congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the [California] department [of Transportation], and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county." For the complete text of the CMP statutes see Appendix II.

2. Legislative Intent and Application to San Francisco

One of the main thrusts of the CMP legislation is to foster coordination of local land use and transportation investment decisions at the county or subregional level. In order to ensure local involvement in this process, which turns more complex when the number of local jurisdictions involved increases, the CMP law vests significant authority and responsibility on the Congestion Management Agencies (CMAs). For example, in order to receive state and federal funds, transportation projects in an urban county must now be recommended by that county's CMA as part of its Congestion Management Program[1]. CMAs therefore act as a policy forum and technical resource to guide and help resolve transportation problems within counties when those problems have implications across city boundaries. San Francisco's distinct status as a city and county dictates a somewhat different role for the CMA in this regard, with the focus of involvement shifting to address problems across county lines (such as the effects of regional commute patterns into San Francisco), as well as issues of coordination of city department activities affecting congestion management, such as trip reduction program implementation or transit service improvements.

3. The San Francisco County Transportation Authority

a. Designation and Composition

On November 6, 1990, the Board of Supervisors designated the San Francisco County Transportation

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[1] If a county opts out of preparing a CMP, per AB2419 (Bowler- see Chapter 1, Section 3.A.), MTC will work with the appropriate county agencies to establish project priorities for funding.

Authority (the Authority) as the CMA for the County. The Authority Board of Directors consists of the eleven members of the San Francisco Board of Supervisors, acting as Commissioners.

b. Roles and Responsibilities

The Authority is a special-purpose government agency, created on November 7, 1989, when San Francisco voters passed Proposition B. Proposition B mandated a 1/2 cent increase in the local sales tax for a period of 20 years, to fund San Francisco's transportation projects and services. The Authority is responsible for the administration and strategic prioritization and programming of the revenues generated by Proposition B. Beyond their own purchasing power, these revenues also allow the City to leverage large amounts of State and Federal funds for transportation investments in San Francisco.

In its capacity as the CMA for San Francisco, the Authority has primary responsibilities in the following areas:

- Development and adoption of the biennial CMP document and related implementation guidance,
- Monitoring of City agencies' compliance with CMP requirements,
- Programming of various Federal and State transportation funds,
- Review and concurrence in the programming of all transportation funds for San Francisco,
- Policy input into the regional transportation planning and programming process, and
- Development and regular updates of the long-range countywide transportation plan for San Francisco.

The Authority's dual responsibilities for strategic programming of Proposition B funds through the ongoing Strategic Plan process and for prioritization and programming of State and Federal funds through the CMP process, represent a major opportunity for the City to achieve a high degree of coordination in its transportation planning decisions, and to optimize the City's investments in transportation projects and services. The leveraging of State and Federal funds through strategic use of Proposition B monies for the required local match is a good example of how effective this process can be. The Countywide Transportation Plan (underway) will further improve the effectiveness of this process by linking the General Plan's transportation objectives and policies to a specific list of transportation investments, prioritized over 20-years. The 7-year CMP CIP will then serve as the main implementation tool for the countywide transportation plan.

In addition, acting as the CMA, the Authority plays a key role in evaluating and providing guidance on major local transportation projects and policies which may affect compliance with congestion management requirements or attainment of CMP standards.

c. Implications of the Board's Multiple Roles

As described above, the San Francisco Board of Supervisors also serves as the Authority's Board, and as the CMA Board. These multiple roles require careful balancing of the Board's responsibilities. Policy decisions made by the Board of Supervisors may have negative congestion management impacts and place the Board, as CMA, in a position to find the City in non-conformance with the CMP. This may in turn generate difficult Proposition B funding choices for the Authority Board.

In order to minimize the potential for conflict, the Authority cannot limit its role to just monitoring CMP conformance after the fact, and must instead take a proactive role to serve as a resource in analyzing the potential congestion management implications of transportation-related actions, projects or policies proposed for the City. In order to fulfill this responsibility, the Authority regularly participates in and comments on studies and discussions of key San Francisco transportation issues, such as the Caltrain Downtown Extension to a reconstructed Transbay Terminal and the Central Freeway replacement/Octavia Boulevard Project. Such an approach allows the Board to better shape policy outcomes by anticipating potential problems as part of its decision-making process at a time when policy options may still be available, instead of having to react when congestion impacts reach crisis proportions and require hasty funding decisions.

d. Relationship to City Agencies

State law mandates that the Authority, acting as Congestion Management Agency (CMA), must biennially determine if the City is in conformance with the adopted Congestion Management Program. A finding of non-conformance has potentially significant consequences for transportation funding in the City. Also according to state law, it is the City's responsibility to ensure that transportation projects, programs, and services are put in place, through its implementing departments, to maintain conformance with the CMP.

In fulfilling its CMA mandate, the Authority must function as an independent agency to be able to objectively and credibly evaluate CMP conformance. This dictates a special relationship with City departments involved in transportation-related actions which must be assessed at least biennially relative to their congestion management impacts. On the other hand, because of the Board's multiple roles, as described in the previous section, the Authority's approach is to act as a resource, maximizing coordination with the City's departments responsible for planning and implementation of transportation actions, so that such actions may be evaluated for congestion management impacts before they are put in place. The Authority's Strategic Analysis Reports (SARs) are a key component of that coordination function, which involves early identification of potential congestion management problems and opportunities, fostering continued communication with implementing departments, and providing system-level evaluation of proposed actions where appropriate.

In order to enhance the Authority's role as a resource for City departments and to facilitate coordination between City Departments and other transportation agencies, in early 1999 the Authority established a Technical Working

Group (TWG) comprised of City department, transit operator, BAAQMD, Caltrans and MTC staff. The TWG meets regularly to discuss programming, planning, system performance and coordination issues.

e. Relationship to Regional Planning/Programming Agencies

As the Congestion Management Agency for San Francisco, the Authority plays a key liaison role with the Metropolitan Transportation Commission (MTC), the Bay Area's regional transportation planning agency, and with the Bay Area Air Quality Management District (BAAQMD), the agency responsible for implementation and monitoring of the region's Clean Air Plan. The Authority serves as the focal point for local input into MTC's Regional Transportation Plan (RTP), which establishes the overall vision for long-range transportation development and funding in the region, and the Regional Transportation Improvement Program (RTIP). Through its membership in the Bay Area Partnership, the Authority plays a key role in shaping the evolution of planning and programming processes affecting San Francisco's ability to capture transportation investments and preserve its economic vitality. Moreover, through its leadership in this forum the Authority is in a position to influence the debate over the vision and goals for transportation planning in the region, bringing to bear San Francisco's special perspective on multimodalism and mobility.

CHAPTER 3

CMP-DESIGNATED ROADWAY NETWORK

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **San Francisco CMP Roadways**
- **Work Program Items - Key Milestones**

1. Legislative Requirements

California Government Code Section 65089(b)(1)(A) requires that the designated roadway system include at least all state highways and principal arterials. No highway or roadway designated as part of the system shall be removed from the system. No clarification is provided in the statutes as to the definition of "principal arterial."

The statutes also refer to regional transportation systems as part of the required land use impacts analysis program, California Government Code Section 65089(b)(4). In 1991, the Bay Area's Congestion Management Agencies (CMAs) designated Congestion Management Program (CMP) networks in coordination with MTC's development of the Metropolitan Transportation System (MTS). The MTS network, which includes both highways and transit services, was subsequently designated as the Congestion Management System, required by the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The MTC contracted with the congestion management agencies in the Bay Area to help develop the MTS and to use the CMPs to link land use decisions to the MTS. The 2001 CMP therefore makes a distinction between the CMP network used for monitoring conformance with the level of service (LOS) standards, and the MTS, used for the CMP's land use impacts analysis program (see Chapter 7).

2. Legislative Intent and Application to San Francisco

CMP legislation requires the designation of a network of roadways to allow the systematic monitoring of performance in relation to established LOS. The network is also the basis of analysis for estimating the transportation impacts of future actions, be they transportation projects proposed as part of the CMP's Capital Improvement Program (CIP), or land development decisions affecting transportation and air quality conditions in the City. For a discussion of the establishment and monitoring of levels of service on the CMP-designated roadway network see Chapter 4.

3. San Francisco CMP Roadways

CMP legislation requires that all state highways (including freeways) and principal arterials are included in the CMP network. Designation of facilities as part of this network must strike a balance between the cost of biennial monitoring of the network according to mandated methods (see Chapter 4), and the usefulness of the network to track the transportation impacts of land development decisions, as well as to assess the congestion management implications of proposed transportation actions. A network containing numerous local thoroughfares may permit more definitive conclusions about the projected congestion impacts of a specific development project than a network that only includes the freeways, particularly in San Francisco, where most urban traffic occurs on city arterials. The next sections document the network selection criteria and process used in the initial San Francisco CMP in 1991, and describes the current network.

a. Selection Criteria

Consistent with State requirements, the San Francisco CMP roadway network includes all freeways and state highways, as well as principal arterials. The statutes do not provide a definition of principal arterials that must be included in the network. San Francisco has defined these as the Major Arterials designated in the Transportation Element of the City's General Plan. Major Arterials are defined as follows:

> *"cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways; these are routes generally of citywide significance; of varying capacity depending on the travel demand for the specific direction and adjacent land uses."*

Several additional arterials - Market Street, Mission Street, Sutter Street, and West Portal - have also been included in the CMP roadway network. These streets experience serious conflicts between auto traffic and high volumes of transit service, and may be susceptible to congestion management techniques such as signal pre-emption at key intersections, to reduce delays to transit vehicles.

b. Current Network

Figure 3-1 depicts the complete CMP roadway network for San Francisco, which comprises 134 miles of roadway facilities. Figure 3-2 shows a detail for the downtown area.

Figure 3-1
San Francisco Congestion Management Program
Roadway Network

Congestion Management Program (CMP) Network
Non-CMP Arterials

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

0.5 0 0.5 Miles

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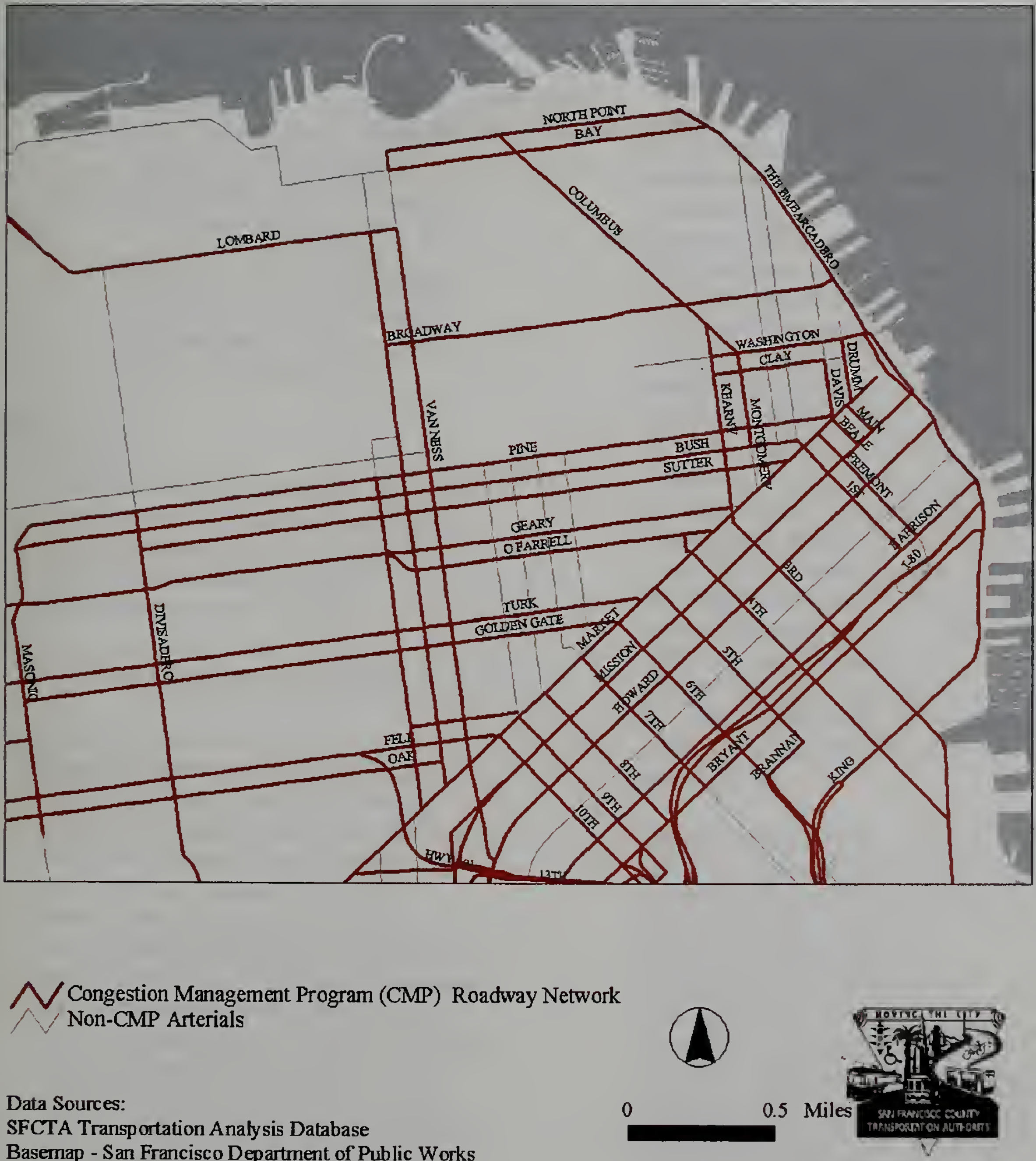
Figure 3-2
San Francisco Congestion Management Program
Roadway Network -- Downtown Area Detail



Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

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Freeways and State Highways

San Francisco's CMP roadway network includes 17 miles of freeways in the City, on Interstate 80, Interstate 280, and US Route 101. A total of 15 miles of State routes designated along City streets are also part of the CMP roadway network, as follows:

- US Route 101 - Richardson Avenue, Lombard Street west of Van Ness Avenue, and Van Ness between Lombard Street and Golden Gate Avenue;
- Route 1 - Park Presidio Boulevard, 19th Avenue, and Junipero Serra Boulevard south of 19th Avenue;
- Route 35 - Sloat Boulevard between 19th Avenue and Skyline Boulevard as well as Skyline Boulevard.

City Arterials

The CMP network includes 102 miles of city arterials. Appendix III lists all city arterials included in the CMP network in addition to those designated as state routes.

c. Proposed Changes - Rationale

State law prohibits the removal of roadway facilities from the initially designated CMP network. This is intended to ensure proper monitoring of system performance. Facilities that are physically removed from the transportation system, such as the Embarcadero Freeway, are obviously not affected by this prohibition, but will be evaluated for future inclusion and monitoring as part of the CMP network once replaced or rehabilitated. New facilities may be added to the CMP network without restrictions, subject to the established criteria for inclusion. In order to improve the reliability of performance (LOS) monitoring, the 1993 CMP introduced changes to the segmentation of roadway facilities. These changes and their rationale are described in Chapter 4. No further changes are proposed in the 2001 CMP.

d. Relationship to the MTS

Roadway

San Francisco's CMP roadway network is broadly consistent with the Metropolitan Transportation System (MTS), as defined by the MTC's latest revisions to the Regional Transportation Plan. The MTS is a regional network of roadways, transit corridors and transfer points, identified by the MTC on the basis of specific criteria. The State highways and major thoroughfares designated in San Francisco's CMP roadway network are all included in the San Francisco portion of the regional MTS network (See Figures 3-3 and 3-4). There are a few instances in which the local CMP roadway network is not identical to the regional MTS network due to differences in the criteria used to define each network. San Francisco's CMP and MTS networks are coordinated with the networks of adjacent counties, to ensure regional connectivity.

As a result of a 1993 agreement, the MTC has delegated responsibility to the Authority for implementation of certain mandates contained in the federal Interstate Surface Transportation and Efficiency Act of 1991 and by extension, under the Transportation Equity Act for the 21st Century. These include the analysis of potential impacts on the MTS of proposed local land use decisions (see Chapter 7).

Figure 3-3
San Francisco Metropolitan Transportation System Roadway Network

Metropolitan Transportation System (MTS) Roadway Network
Congestion Management Network
Both MTS and CMP Roadway Networks

0.5 0 0.5 Miles

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works
MTS - Metropolitan Transportation Commission

Figure 3-4
San Francisco Metropolitan Transportation Systems
Roadway Network -- Downtown Detail

Metropolitan Transportation System (MTS) Roadway Network
Congestion Management Network
Both MTS and CMP Roadway Networks

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works
MTS - Metropolitan Transportation Commission

0 0.5 Miles

Transit

The Metropolitan Transportation Commission (MTC) has initiated a major revision to the transit Metropolitan Transportation System (MTS). Presently, the transit MTS includes all existing transit routes and service. MTC has proposed a three-tiered transit MTS that would include a commute tier, lifeline transit tier, and a paratransit tier. At this point, the implications of redefining the transit MTS aren't entirely clear; however, it could influence prioritization of funds for transit projects and potentially transit performance measures. As CMA for San Francisco, the Authority will continue to participate in MTC's efforts to revise the transit MTS.

MTC has started to develop the lifeline transit network. This network is intended to include the key transit routes and services (including a time of day component to the network) for getting low-income and minority communities to key destinations such as employment, shopping and childcare. As part of this process, MTC has developed a series of maps for each county taking into consideration the residential locations of CalWORKS recipients (i.e. welfare recipients), transit routes by operator, key destinations (shopping, employment, child care), and census tracts with concentrations of poverty. Based on this information, MTC was able to identify transit gaps, which can then be used to help transit operators and community organizations better serve low-income communities. MTC's preliminary criteria used to identify Lifeline Transit route candidates include:

1) serve low-income communities as defined by high concentrations of CalWORKs households, or
2) serve high concentrations of key destinations, or
3) are a part of each transit operator's core service network as defined by that operator, or
4) are key regional links.

However, developing criteria to identify the lifeline routes and services has been difficult given the diversity in available transit frequencies, coverage, and operating hours in the nine Bay Area counties. Even more challenging will be finding a way to pay for new transit services. Given the very limited amount of funding available for transit operations (most funds are for capital projects, either new operating revenue sources will need to be identified or transit operators may need to make difficult choices about reallocating existing resources.

However, the Lifeline Transit Network is ultimately defined, San Francisco will be in good stead: our transit coverage (e.g. how far a person must walk to a transit stop), frequency, and hours of service are the highest anywhere west of the Mississippi River. Furthermore, our land use patterns – much of which is high density, mixed-use development – coupled with the transit service provide everyone with a high level of accessibility to employment services and recreation. Thus, the Lifeline Transit "gaps" that may be identified in San Francisco are more likely to be temporal (i.e. time of day or day of week) versus spatial.

4. Work Program Items – Key Milestones

- Consider additional roadway facilities for the network - By February 2002 (for the next CMP update).

- Continue to participate in MTC's effort to redefine the transit Metropolitan Transportation System (MTS)

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CHAPTER 4

ROADWAY LEVEL OF SERVICE (LOS) MONITORING

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Technical Approach**
- **Monitoring Results**
- **Future Monitoring Approach**
- **Caltrans' Role**
- **Work Program Items – Key Milestones**

The previous Chapter described the CMP roadway network and the criteria for inclusion of certain roadway facilities. This chapter documents the methodology used for monitoring this system, and provides a comparison of monitoring results from 1991, 1993, 1995, 1997, 1999, and 2001.

1. Legislative Requirements

The California Government Code requires the establishment of operating standards for the CMP-designated network of roadway facilities, and it leaves to the CMA the choice among allowable methods for measurement of level of service (LOS) as detailed in one of the following sources:

- Transportation Research Board Circular 212 (TRC 212),
- Transportation Research Board's Special Report 209: *Highway Capacity Manual (HCM)*, latest version; or
- A uniform methodology adopted by the CMA that is consistent with *the Highway Capacity Manual.*

Section 65089(b)(1)(B) states that "In no case shall the LOS standards established be below the LOS E or the current level, whichever is farthest from LOS A. When the level of service on a segment or at an intersection fails to attain the established level of service standard, a deficiency plan shall be adopted pursuant so section 65089.4" In addition, Section 65089.3 establishes that "The [California] [D]epartment [of Transportation] is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity."

2. Legislative Intent and Application to San Francisco

LOS is a traffic engineering concept designed to describe the operating conditions on a roadway. LOS describes operating conditions on a scale of A to F, with A being the best (free flow), and F being the worst (bumper-to-bumper) conditions. Attributes that make up the A to F degrees of the LOS scale are a mixture of quantitative measures (such as speed and travel time), and qualitative observations, such as freedom to maneuver. The result is a system that is highly descriptive, but which also allows meaningful quantification and comparison of results for different facilities and situations.

LOS standards are the reference point or quantified goal against which it is possible to measure the performance of the CMP roadway network. If actual system performance falls below the standard, (i.e. congestion worsens) actions must be taken to restore or improve LOS. Biennially, the CMA is required to determine the City's conformance with the CMP, including attainment of LOS standards.

The intent of the legislation is to use LOS as the main indicator of congestion and as the uniform yardstick for measurement of improvement, as well as to gauge the congestion abatement potential of proposed transportation solutions. The choice of LOS for this purpose reflects the suburban roots of the congestion management legislation: congestion relief is to be measured by the ability of the transportation system to move automobiles, because in the suburbs the single-occupant automobile is still the prevalent mode of transportation. It also reflects the fact the LOS has been used and codified more extensively and systematically than any other transportation facility performance method. Therefore, LOS is also the method that offers least potential for controversy or challenge when a CMA makes a finding of non-conformance.

"The maintenance of LOS standards on CMP roadways in San Francisco requires a comprehensive and multimodal approach which takes into account the congestion relief potential of transit and other non-automobile based solutions, as well as operational improvements to roadways."

Improvements on the LOS scale ensure better travel conditions for motorists, but the LOS scale does not take into account the *people throughput* potential of a roadway. Under optimum (LOS A) operating conditions, a city arterial may be carrying the maximum number of automobiles at high speed, but if each vehicle carries only the driver the people throughput of the facility is suboptimal. San Francisco faces a double challenge on this issue: on the one hand the City must comply with the LOS requirements and prevent LOS conditions from deteriorating below the set standards. On the other hand, it must strive to identify a performance measurement method that reflects San Francisco's transportation realities more appropriately than LOS. We have already begun the effort to develop multimodal performance measures appropriate to San Francisco. These are described in detail in Chapter 5 *Multimodal Performance Element.*

Over the next decade, the performance measurement method will play an increasingly significant role in San Francisco's congestion management efforts as the City undertakes or completes rehabilitation of a number of significant transportation projects, such as The Embarcadero Roadway, the Transbay Terminal, Third Street Light Rail and Doyle Drive. Mitigation of congestion impacts and analysis of deficiencies will require significant coordination between City departments and the Authority, to ensure continued conformance with CMP requirements.

The maintenance of LOS standards on CMP roadways in San Francisco requires a comprehensive and multimodal approach that takes into account the congestion relief potential of transit and other non-automobile based solutions, as well as operational improvements to roadways.

3. Technical Approach

Biennially, the Authority performs LOS monitoring on the CMP network using Federal planning funds available for this purpose. At the time of conformance findings, the Authority, acting as the CMA, assesses the City's conformance with LOS standards based on the results of monitoring. The CMA ensures that LOS measurement methods used by its contractors, Caltrans, or any other agencies involved in monitoring the CMP network are consistent with State law.

a. LOS Standard

The traffic LOS standard for San Francisco is consistent with CMP mandated criteria and was established at E in the initial (1991) CMP network. Facilities that were already operating at LOS F at the time of baseline monitoring, conducted in connection with the development of the first CMP in 1991, are legislatively exempt from the LOS standards. These exempt CMP facilities will be monitored periodically for planning purposes.

b. Methodology

The methodology used for monitoring LOS on San Francisco's CMP network follows the specifications detailed in the Highway Capacity Manual. All 134 miles of freeways and arterials in the network are monitored using a floating car technique, which allows determination of LOS on the basis of average operating speed. For this purpose the network is divided into 89 segments.

i. **Freeways**

US Route 101, Interstate 80, and roadway facilities with designated freeway status in San Francisco. Each of these freeways also serves as a primary gateway for interregional travel between San Francisco and adjacent counties. Consistent with the law, LOS monitoring for these facilities is based on average operating speed. In addition, an alternative measure of LOS using the ratio of observed traffic volumes to freeway capacity (or V/C ratios) at selected county border screenlines is used as a test of reasonableness of LOS monitoring results. Volume data for interstate 80 at the Bay Bridge toll plaza are available through the Metropolitan Transportation Commission for this purpose. Similarly, volume data for US Route 101 at the Golden Gate Bridge toll plaza are available from the Golden Gate Bridge, Highway and Transportation District. For this facility V/C ratio is calculated for the morning peak period, inbound into San Francisco, because toll payment allows more accurate enumeration than outbound (toll free) travel.

ii. **Arterials**

As discussed in Chapter 3, arterials designated in San Francisco's CMP network include the following three groups of streets:

- ✓ segments of state routes which operate on City streets;
- ✓ major thoroughfares identified in the City's General Plan;
- ✓ other major streets with significant conflicts between automobile traffic and high volumes of transit service.

These three groups of City streets form the backbone of San Francisco's arterial network. The operation of these arterials is controlled through an interconnected set of signalized intersections. The overall performance of each arterial is best evaluated through analysis of segments of each roadway. Evaluation is performed following the "Urban and Suburban Arterial" methodology of the 1985 Highway Capacity Manual (Chapter 11). The methodology is applied to determine level of service for each arterial segment using direct field measurements of average travel speed.

c. Network Segmentation Documentation of Method and Criteria

Development of the 1993 CMP included a comprehensive effort to document the criteria used in 1991 to establish the initial segmentation of the CMP roadway network in San Francisco, including freeway facilities. The following five criteria were identified as major determinants of segment limits for the city arterials in the CMP: predominant development patterns (including factors such as number of driveways, institutional users, etc.), changes in speed limits, major cross streets, significant changes in traffic volumes, and occurrence of freeway ramps. These criteria are dictated by accepted traffic engineering practice, and they reflect factors that are generally recognized as significant in explaining the operating behavior of a roadway. Table 1 in Appendix III contains a listing of all CMP arterials in San Francisco, highlighting the specific criteria that apply to determine the geographic limits of each segment.

For freeway facilities the segmentation criteria are simpler. They include interchange on and off ramps, and points were two freeway facilities merge or bifurcate. Segment limits for freeways in the San Francisco CMP are also shown in Appendix III.

Segmentation changes
Table 2 in Appendix III lists all CMP arterials where segmentation changes were introduced as part of the 1993 CMP, including a technical justification. Changes were introduced in the segmentation of 18 arterial in the network. The new arterial segments follow more closely the five segmentation criteria described above, and they provide a better framework for monitoring of LOS, improving comparability of results among similar facilities. By better reflecting local conditions these new segments increase the reliability and explanatory power of LOS measurements on the network. This is essential to provide a solid basis for decision-making leading to development and implementation of congestion management actions. No segmentation changes were proposed as a result of the 2001 LOS monitoring cycle, but changes may be considered during fiscal years 2001/02 and 2002/03, as necessary.

4. Monitoring Results

In order to determine initial (baseline) LOS conditions, monitoring of the CMP network was performed by the Department of Parking and Traffic during the summer of 1991. This initial monitoring also allowed identification of network segments at LOS F, which are legislatively exempted from conformance with the established LOS E standard but will continue to be periodically monitored and targeted for congestion management measures as appropriate.

Tables I and II in Appendix IV show LOS monitoring results for all segments of arterials and freeways in the CMP network. The information includes segment length, direction of travel, time of day (AM and PM peak), average operating speed measured, and LOS results for 1991, 1993, 1995, 1997, 1999, and 2001.

For LOS monitoring purposes, the CMP network segments are divided into three categories:

- **Exempted** – segments which were at LOS F during the first (1991) monitoring cycle and are legislatively exempted from the LOS E standard;
- **Tier 1** – non-exempt segments which were at a LOS D, E or F during the most recent monitoring cycle; and

- **Tier 2** – non-exempt segments which were at a LOS A, B or C during the most recent monitoring cycle.

Tier 1 segments are monitored each cycle since these are the segments with the greatest potential to exceed (or fail) the LOS standard. Exempted segments and Tier 2 segments are monitored periodically. As part of the 2001 monitoring cycle, data was collected for all Tier 1 segments and for many Tier 2 and exempted segments. The Tier 2 and exempted segments were included to provide data that will be useful for the Authority's travel demand forecasting model (see Chapter 10), and to ensure that recent data is available for all segments.

LOS monitoring for the current conformance determination cycle was performed between April and June 2001. The 2001 LOS results are shown in Figures 4-1 (citywide) and 4-2 (downtown detail) for the AM peak period and Figures 4-3 (citywide) and 4-4 (downtown detail) for the PM peak period.

Table 4-1 lists the 25 segments that were found to be at LOS F during the 2001 monitoring. Ten of these segments are legislatively exempted from conformance with the LOS E standard since they were already at a LOS F during the initial 1991 monitoring cycle. Of the remaining 15 LOS F segments, three are for the a.m. peak period and 12 are for the p.m. peak period. The majority of the LOS F segments are located in the South of Market area, which has experienced a period of rapid growth over the last several years.

Per CMP procedures, the non-exempt LOS F segments should be monitored two more times to verify the LOS F findings before requiring implementation of deficiency plan. The Authority has contracted with a consultant to monitor the segments in October/November 2001 and again in March/April 2002. The results will be reported to the Plans & Programs Committee in May 2002, per the deficiency plan procedures described in Chapter 9.

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Figure 4-1
San Francisco Congestion Management Program
2001 Roadway Level of Service Monitoring Results: AM Peak Period

Level of Service
A - C
D - E
F
CMP Network Not Monitored in 2001
Non-CMP Arterials

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

0.5 0 0.5 Miles

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

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Figure 4-2
San Francisco Congestion Management Program
2001 Roadway Level of Service Monitoring Results: AM Peak Period
Downtown Area Detail

Level of Service
A - C
D - E
F
CMP Network Not Monitored in 2001
Non-CMP Arterials

0 0.5 Miles

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

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Figure 4-3
San Francisco Congestion Management Program
2001 Roadway Level of Service Monitoring Results: PM Peak Period

Level of Service
- A - C
- D - E
- F
- CMP Network Not Monitored in 2001
- Non-CMP Arterials

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

1:80000

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Figure 4-4
San Francisco Congestion Management Program
2001 Roadway Level of Service Monitoring Results: PM Peak Period
Downtown Area Detail

Level of Service
A - C
D - E
F
CMP Network Not Monitored in 2001
Non-CMP Arterials

1:31400

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

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Table 4-1
2001 Roadway Level of Service (LOS) Monitoring Results – LOS F Segments

A.M. Peak Period – Arterials

CMP Route	Limits	Previous Results	2001 Study Results	Comments
6th Street Northbound	Brannan to Market	1991: C or better 1993: 13.8 mph (C)	Avg Speed = 4.7 mph LOS = F	This segment requires follow-up monitoring per CMP procedures.
Duboce/Division Eastbound	Market to Mission	1991: C or better 1993: 7.7 mph (E) 1995: 9.1 mph (D) 1997: 3.0 mph (F) 1999: 8.8 mph (E)	Avg Speed = 5.5 mph LOS = F	Same as above.

A.M. Peak Period – Freeways

CMP Route	Limits	Previous Results	2001 Study Results	Comments
US 101 Northbound	I-280 to I-80	1991: 21.4 mph (F) 1993: 21.2 mph (F)	Avg Speed = 28.1 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.
I-80 Southbound	Treasure Island to Fremont	1991: 17.5 mph (F) 1993: 32.2 mph (E)	Avg Speed = 28.8 mph LOS = F	Same as above.
I-80 Southwest	Fremont to US 101	1991: 48.1 mph (D) 1993: 33.3 mph (E)	Avg Speed = 25.9 mph LOS = F	This segment requires follow-up monitoring per CMP procedures.
I-80 Northbound	US 101 to Fremont	1991: 18.6 mph (F) 1993: 53.6 mph (D) 1995: 38.0 mph (E) 1997: 32.4 mph (E) 1999: 28.8 mph (F)	Avg Speed = 16.3 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.

P.M. Peak Period – Arterials

CMP Route	Limits	Speed Results	2001 Study Results	Comments
1st Street Southbound	Market to Harrison	1991: 1.2 mph (F) 1993: 15.5 mph (C)	Avg Speed = 2.1 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.
5th Street Southbound	Market to Brannan	1991: 7.9 mph (E) 1993: 13.5 mph (C)	Avg Speed = 5.2 mph LOS = F	This segment requires follow-up monitoring per CMP procedures.
6th Street Southbound	Market to Brannan	1991: 6.7 mph (F) 1993: 11.5 mph (D) 1999: 9.5 mph (D)	Avg Speed = 6.8 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.
6th Street Northbound	Brannan to Market	1991: C or better 1993: 12.7 mph (D) 1995: 12.7 mph (D) 1997: 11.2 mph (D) 1999: 9.0 mph (D)	Avg Speed = 6.4 mph LOS = F	This segment requires follow-up monitoring per CMP procedures.
Brannan Eastbound	Division to 9th Street	1991: C or better 1993: 25.4 mph (A)	Avg Speed = 4.5 mph LOS = F	Same as above.
Brannan Eastbound	6th Street to 5th Street	1991: C or better 1993: 14.3 mph (C)	Avg Speed = 5.5 mph	Same as above.
Brannan Westbound	5th Street to 6th Street	1991: C or better 1993: 11.7 mph (D) 1995: 11.6 mph (D) 1997: 10.1 mph (D) 1999: 8.6 mph (E)	Avg Speed = 5.6 mph LOS = F	Same as above.
Brannan Westbound	9th Street to Division	1991: C or better 1993: 13.1 mph (C)	Avg Speed = 1.8 mph LOS = F	Same as above.
Broadway Westbound	Embarcadero to Montgomery	1991: C or better 1993: 15.4 mph (C) 1999: 9.6 mph (D)	Avg Speed = 4.4 mph LOS = F	Same as above.

CMP Route	Limits	Speed Results	2001 Study Results	Comments
Embarcadero Northbound	Townsend to North Point	1991: C or better 1993: 16.7 mph (C)	Avg Speed = 6.4 mph LOS = F	Same as above.
Fremont Northbound	Harrison to Market	1991: C or better 1993 9.3 mph (D) 1995: 10.6 mph (D) 1997: 16.6 mph (C)	Avg Speed = 3.2 mph LOS = F	Same as above.
Gough Southbound	Pine to Geary	1991: 9.5 mph (D) 1993: 21.8 mph (B)	Avg Speed = 6.5 mph LOS = F	Same as above.
Main Northbound	Mission to Market	1991: C or better 1993: 9.8 mph (D) 1999: 7.7 mph (E)	Avg Speed = 5.4 mph LOS = F	Same as above.
Market/Portola Eastbound	Guerrero to Van Ness	1991: 8.3 mph (E) 1993: 17.9 mph (C) 1999: 7.4 mph (E)	Avg Speed = 6.7 mph LOS = F	Same as above.
O'Farrell Eastbound	Mason to Market	1991: 6.9 mph (F) 1993: 7.9 mph (E)	Avg Speed = 4.2 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.

P.M. Peak Period – Freeways

CMP Route	Limits	Speed Results	2001 Study Results	Comments
US 101 Northbound	I-280 to I-80	1991: 24.6 mph (F) 1993: 45.8 mph (E) 1995: 31.8 mph (E) 1997: 40.9 mph (E) 1999: 6.2 mph (F)	Avg Speed = 24.0 mph LOS = F	This segment was at LOS F during the initial monitoring cycle (1991). Per state law, this segment is exempted from the LOS E standard and does not constitute a deficiency.
I-80 Southwest	Fremont to US 101	1991: 18.8 mph (F) 1993: 21.5 mph (F)	Avg Speed = 24.9 mph LOS = F	Same as above.
I-80 Northbound	US 101 to Fremont	1991: 19.0 mph (F) 1993: 25.9 mph (F)	Avg Speed = 14.8 mph LOS = F	Same as above.
I-80 Northeast	Fremont to Treasure Island	1991: 29.3 mph (F) 1993: 37.7 mph (E) 1995: 34.6 mph (E) 1997: 45.6 mph (E) 1999: 23.1 mph (F)	Avg Speed = 21.6 mph LOS = F	Same as above.

5. Future Monitoring Approach

In addition to average speed measurements, the Authority will continue to explore with the Department of Parking and Traffic the possibility of systematizing existing measurements of arterial traffic volumes by tube counts (mechanical counters) so that they can provide additional data at regular intervals. Other possibilities, including installation of traffic counting loop detectors at permanent counter stations, and the need for new cordon counts of downtown (the last one was in 1983) will also be considered. Arterial volume counts may be used to monitor the progress of congestion management actions in between biennial LOS measurements. The Authority may perform more frequent average operating speed monitoring, if tube counts or other evidence gathered between biennial conformance determinations suggests significant or more rapid increase in congestion than initially anticipated and if this trend should jeopardize CMP conformance in the short term.

Although the focus of the Congestion Management Program is on system-level analysis and link-level measurement of LOS, in order to more closely track the evolution of congestion problems on the CMP network, the Authority may require an examination of operating conditions at certain intersections. Intersection analysis techniques will follow the methodology described in Chapter 9 of the 1985 Highway Capacity Manual. In addition, operational analyses of intersections for assessment of impacts in connection with land development proposals will follow the analytical methods detailed in the City's environmental review guidelines (see Chapter 7: *Land Use Analysis Program*)

6. Caltrans' Role

Although Section 65089.3 establishes that Caltrans is responsible for LOS monitoring on the State highway system, the department has not been able to fully address this obligation due to budget constraints. The Authority continues to work with Caltrans District 4, MTC and the other Bay Area CMAs to ensure that freeway operations data still being collected by Caltrans is put to the best possible use to help satisfy CMP monitoring requirements. Until a budget solution is found, the Authority will continue to include state highways in its periodic LOS monitoring efforts to ensure that the information is available to satisfy CMP conformance determination requirements.

7. Work Program Items – Key Milestones

- Conduct follow-up monitoring of appropriate segments in October/November 2001 and March/April 2002 to determine whether there is a deficiency. Report results to the Plans & Programs Committee by May 2002.

- Propose CMP network segmentation changes if necessary.

- Perform an administrative review to ensure that CMP network segmentation is accurately portrayed in the LOS tables and maps. Conduct monitoring of any segments that have not been monitored due to administrative oversight (e.g. Folsom St. and Doyle Drive). If possible, this should be coordinated with the follow-up LOS monitoring described in the first bullet in order to ensure data comparability and to achieve cost efficiencies – By April 2002.

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CHAPTER 5

MULTIMODAL PERFORMANCE ELEMENT

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Multimodal Performance and Mobility**
- **Uses of Multimodal Performance Measures**
- **Methodology for Performance Evaluation**
- **Work Program Items -Key Milestones**

1. Legislative Requirements

Section 65089(b)(2) replaces the transit service standards requirements in the 1991 and 1993 CMPs. AB 1963 in 1994 resulted in changes to CMP law. The statutes state that the CMP shall include "[a] performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, and measures established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the capital improvement program..., deficiency plans..., and the land use analysis program...."

2. Legislative Intent and Application to San Francisco

The intent of the new performance element is to broaden the very narrow definition of performance used in the original legislation, which limited measurement to Level of Service (LOS) on roadways. It is an acknowledgment of the need for diversified solutions to complex transportation problems in urban areas, and the impossibility of tackling them with just one mode. Furthermore, the performance element recognizes the connection between transportation investment and system performance, and that this performance should be measured.

San Francisco's environment is suited to the use of alternative performance measures and to the application of multimodal performance criteria. High transit share and large transit investments mean that the City will benefit from a multimodal approach to system performance.

Although the legislative intent is clearly to encourage the use of alternatives to traveling by single-occupant automobile, lack of additional funding for transit operations dictates a cautious approach to determining the degree to which congestion mitigation will be dependent on expansion of traditional fixed-route transit service. Other alternatives for improving mobility and addressing congestion are addressed in the Chapter 6: Trip Reduction Element.

3. Multimodal Performance and Mobility

The performance of the multimodal transportation system has a critical impact on mobility in San Francisco. Mobility is a concept that is not easily defined in a few words, but it refers to people's ability to travel, or ease of travel from point A to point B. Mobility has several key aspects. In analyzing mobility involving, for example, travel from A to B, we would consider:

a. the availability, convenience, and accessibility of transportation between A and B
b. the availability of *options* (more than one mode of transportation, or more than one alternative within a mode, such as different bus routes) to travel between A and B
c. the *affordability* of transportation between A and B
d. the *reliability* of transportation between A and B
e. the *safety* of transportation between A and B

These are attributes of the transportation system, but they are not constant. They are likely to vary if we consider a different origin-destination pair, instead of A and B; and they may even vary for different types of users even considering the same A/B pair. For example, the same bus route may be convenient to one person and inaccessible to their next door neighbor who cannot walk one block uphill to the bus stop. These system attributes also vary with trip purpose and time of day. A 20-minute bus headway may be OK for a mid-day shopping trip, but may be inadequate for a morning commute trip. Similarly, a 20-minute wait for a bus may not be an option at night in an unsafe neighborhood.

Thus, the same A/B pair may have several different accessibility ratings depending on age, physical disability, time of day, or trip purpose. It is easy to see how traditional service quality indicators, such as geographic coverage or bus route frequency only provide part of the system performance picture.

These distinctions can in many cases explain the choice between transit and other modes, particularly for trips within San Francisco, and are therefore very important to consider in attempting to measure system performance. This is so because in measuring performance we are measuring the ability of the system to satisfy the transportation needs of all San Franciscans.

4. Uses of Multimodal Performance Measures

Multimodal performance measures will be used for the following purposes:

a. CMP Conformance Determinations: Link (roadway) Level of Service (LOS) will continue to be used for conformance determinations for the next year, while additional performance measures are further developed and tested.

b. CIP Amendments: The Authority will continue to evaluate the potential impacts of proposed CIP changes on the performance of the multimodal network. This information is used as one of the factors in deciding Authority concurrence with such proposals. See Chapter 8 for further details.

c. Deficiency Plans: Only link LOS measurements will be used for deficiency determinations. However, other multimodal measures will be used in the assessment of future deficiencies, though predictive deficiency identification does not have conformance implications under current CMP law.

d. Land Use Impacts Analysis: Multimodal performance measures will be used for the analysis of impacts of local land use decisions on the CMP network. Because the land use impacts analysis process is only advisory, the Authority expects to apply a number of performance measures to the analysis, to test their adequacy over time. For further details, please refer to Chapter 7.

5. Methodology for Performance Evaluation

Consistent with state law, the 2001 San Francisco CMP distinguishes between two tiers of performance measures. Tier 1 includes roadway LOS plus three transit service performance measures: routing, frequency, and inter-operator service coordination. These are the most traditional measures, with a more substantially documented record of reliability in terms of our ability to measure and interpret them accurately. Roadway LOS is used in connection with CMP conformance determinations.

Tier 2 includes new multimodal performance measures that require continued testing before they are applied to the CMP conformance process. Standards will be developed for these performance measures according to the results of testing over time. The Authority's main technical vehicle for development of a final set of Tier 2 performance measures is the Citywide Mobility Study. For a description of this study, please refer to Section 5.5.3 below.

Starting in 2002, Authority staff will prepare an annual system performance report and submit it for consideration by the Authority Board. The report will include information about Tier 1 measures, the initial set of adopted Tier 2 measures and a progress report on Tier 2 activities. Transit performance information will also be included, as described in section 5.5.3. The 2002 report should be released in early 2002, in order to provide input to the countywide plan.

5.5.1. Tier 1 Performance Measures

a. Roadway Level of Service (LOS): This is the most traditional and best documented performance measure, but it is not the most adequate to assess performance in a system which includes a major transit component, as well as substantial amounts of pedestrian and bicycle travel. It is described in detail in Chapter 4: LOS Monitoring.

b. Transit Coverage/Routing: This refers to the pattern of the transit route network (e.g., radial, grid, etc.) and the service area covered (e.g., percent of total population served within one-quarter mile; or percent of total urbanized area served).

c. Transit Frequency: This is the number of transit vehicles (buses, trains or ferries) per hour (e.g., 4 buses per hour). The inverse of the frequency is called "headway", which is the time between transit vehicles (e.g., 15 minutes between buses).

Table 5-A, found at the end of this chapter, shows frequency and coverage standards for all transit operators that provide service in San Francisco. For ease of understanding, frequency standards are expressed as a headway, which is the time between two consecutive transit vehicles in a given route. For example, instead of "4 buses per hour" (i.e., frequency of service), the tables show "15-minute headways."

A number of transit operators provide connections to and from points outside the City. Because of the predominantly suburban, low-density environment in which they function, which limits the amount and kinds of service they can provide, these operators have established significantly different standards from those that Muni is expected to achieve in San Francisco. These differences are reflected in Table 5-A. The transit standards are essentially established policy and in most cases are taken directly from each operator's current Short Range Transit Plan.

d. Interoperator Coordination: This addresses the linkages between transit services provided by different operators (e.g., timed transfers at transit centers, joint fare cards, etc.), to facilitate the use of transit.

Initially, Senate Bill 602 required that MTC, in coordination with the Bay Area's Regional Transit Coordinating Committee (RTCC), develop rules and regulations for fare and schedule coordination in MTC's nine-county Bay region. More recently, SB 1474 set coordination objectives for the region's transit services, and MTC has adopted Resolution 3055, Transit Coordination Implementation Plan, to comply with SB1474. This MTC-led process is considered sufficient to meet the intent of CMP law regarding transit service coordination in the region. Compliance with MTC's process by Muni and all other operators serving San Francisco will therefore constitute sufficient grounds for a finding of conformance with CMP transit coordination requirements.

5.5.2. Tier 2 Performance Measures: Approach

Monitoring and analysis of traffic congestion is supported by several decades of technical methodology and experience. For example, the Authority periodically measures level of service (LOS) on the CMP roadway network, including City arterials and freeways. Motorists have access to highly reliable traffic reports on a daily and even on an hourly basis through the broadcast media. By contrast, information about the *performance* of the rest of the transportation network, for those who choose to walk, bike or take transit, is sketchier and the information that is available tend to be of limited value to the user. For example, transit system data is collected mostly in response to federal or state requirements tied to eligibility for funding. Typical data collected includes total daily ridership, an indicator of current demand for service, and cost per passenger mile, an indicator of cost effectiveness. However, while these are useful *management* tools, they say little about the *quality* of service, i.e., the system performance, as experienced by the user. Similarly, data pertaining to bicycle and pedestrian trips is seldom available. When collected, it is usually in connection with a specific project proposal, and is not a part of a systematic effort that provides a picture of the user's experience.

The need for multimodal performance data is becoming increasingly clear. It is necessary to provide better information to the traveling public, and it is also required to inform policy decisions about funding of transportation projects and services.

We are testing multimodal performance measures and developing a methodology for their application to San Francisco through the Citywide Mobility Study. A primary goal of the Citywide Mobility Study is to develop a set of user-based performance measures and related standards that can be used *consistently* and *systematically* to help explain and influence people's travel choices, predict future travel behavior, track the performance of the transportation system over time, and inform policy-level transportation investment decisions in San Francisco. By applying the performance measures for travel by car, transit, bicycle or foot to different neighborhoods in the City, we can produce a *citywide picture of comparative mobility* between neighborhoods, modes (e.g. transit vs. auto), or types of users (e.g. transit dependent, elderly).

In order to minimize data collection efforts, performance measures should be reliable, intuitive, and the data required should be readily available from City departments or from other Authority activities. In addition, these measures must be relevant to the evaluation of mobility issues as described in Section 3 above, and applicable to the specific CMP uses described in Section 4 above.

The Authority's Transportation Analysis Database (TAD) is the main tool for analysis of system performance and it will be the main repository for performance-related data. The TAD facilitates measurement and evaluation of non-traditional performance aspects, such as those related to pedestrian and bicycle travel. It also lets us easily view the performance measures from several different perspectives, including different geographic scales (e.g. citywide, neighborhood level, etc.) and different user groups (e.g. elderly, low income, zero-vehicle households, etc). A detailed description of the TAD is included in Chapter 10.

In order to identify, refine and test the Tier 2 multimodal performance measures, the Authority initiated the Citywide Mobility Study. This ongoing effort is described in Section 5.5.3 below.

5.5.3 The Citywide Mobility Study

In 1997, the Citywide Mobility Study was undertaken by the Authority to provide a systematic framework for a) selecting new multimodal performance measures for San Francisco, and b) establishing an acceptable method for calculating those measures in preparation for the 1999 CMP. These are the measures that will satisfy Tier 2 performance evaluation as described in the previous sections.

The Mobility Study is structured in three phases, leading to the development of recommended performance measures. The first phase is to conduct focus groups to hear the opinions of San Francisco transportation system users about what they perceive as important in making their own choices about travel within the City. This step is intended to both verify that our initial assumptions about critical variables (travel time, schedule reliability, etc) were correct, and also to identify any other factors that we may have overlooked, but which may figure significantly in people's travel behavior. In July 1997, the Authority held two focus groups. The groups included a broad cross-section of San Francisco transportation system users, including various socioeconomic strata, geographic locations, transportation modes, and so on. The participants were asked about the advantages and disadvantages of the different modes of travel and relative importance of these reasons on decision-making. A summary of the results is shown in Table 5-B. These results were used in the second step, described below.

The second step in the study was to conduct telephone interviews. These interviews, conducted in late 1997, were intended to provide validation at a statistically significant level of the views and opinions elicited from San Francisco system users during the focus groups. Over 500 respondents were interviewed. The respondents were broadly representative of the City's residents with respect to demographics and geographic distribution. Surveys were conducted in English, Chinese and Spanish.

The survey asked residents about the most important improvements for each mode of travel and about specific aspects of a particular trip purpose and mode. For instance, some respondents were asked about driving to work. Others were asked about taking transit to the grocery store or riding a bicycle to school. Typical questions for a transit trip included door-to door travel time, length and variability of the wait time for transit, level of crowding on the transit vehicle, and their level of satisfaction with the service. Respondents were also asked to rate the importance of a series of improvement for each mode. Those results, broken down by commute (e.g. work or school trip) versus non-commute (e.g. shopping, recreation, medical, etc.) trips are shown in Table 5-C.

As shown, the basic outcome of the telephone surveys is a ranking of variables or factors according to their power as explanatory variables of travel behavior or mode choices among San Francisco travelers. This ranking or variables became the basis for the next step. It should be noted that the Authority intends to periodically conduct additional surveys to ensure that the Tier 2 performance measures continue to capture those factors that are most important to the user.

In the last step of the study, the variables identified as having a significant role in explaining travel behavior in San Francisco are used to develop algorithms in the Authority's Transportation Analysis Database (TAD) to calculate the proposed performance measures. As it turns out, the limiting factor in the development of the performance measures is the availability of reliable data that is in a PC-compatible format. Thus, the first set of Tier 2 performance measures recommended to the Board were a combination of those factors that were identified as the most important to the user and the available data. The first set of Tier 2 measures was adopted by the Board in August 1998 and is shown in Table 5-D. The table also includes a number of explanatory measures – factors that help to interpret the performance measures.

Testing of these measures is ongoing. Use of multimodal performance measures for the purposes described in Section 4, is a relatively new phenomena in transportation planning; consequently, we fully expect that the measures and the methodology for their application and interpretation will need to be refined. With this context in mind, we expect to present the first system performance report to the Authority Board during the first quarter of the year 2002. It will include refinements of the measures shown in Table 5-D, as well as suggestions for future measures.

5.5.3. Tier 2 Performance Measures Derived from Existing Data

In addition to the measures described above, there are a number of other measures that can provide further perspective on the performance of the transit system, particularly as relates to other providers in the industry. Table 5-E includes seven such measures that will be tracked and included in the annual performance report to the Authority Board. These measures can be tracked using data currently collected by Muni and other transit operators.

It should be noted that Proposition E, which sets certain standards for Muni, was passed by the voters after the Authority Board adopted the initial set of tier 2 performance measures. As Muni improves and expands its performance data collection activities, we will evaluate opportunities to incorporate Muni's performance measures, as appropriate, and evaluate potentially new user-based measures.

Table 5-A

Transit Service
Frequency and Coverage Standards
Muni

Frequency Standard

Weekday	Peak	Base	Evening	Owl
Radial	10	15	20	30
Express	10	--	--	--
Cross-town	15	15	20	30
Feeder	20	30	30	--

Weekend	Base	Evening	Owl
Radial	15	20	30
Cross-town	20	20	30
Feeder	30	30	--

Coverage Standard

Walking distance to a route that runs at least 19 hours per day is one-quarter mile or less.

AC TRANSIT

Frequency Standard

SERVICE TYPE	TIME PERIOD				
	Peak	Mid-day	Night	Owl	Weekend/Holidays
Transbay Express	10-30	--	--	--	--
Transbay Basic	10-15	30-45	45-60	--	30

Coverage Standard

AC Transit provides two levels of service to the Transbay Terminal in San Francisco. Transbay Express provides medium to high frequency peak-hour service between San Francisco and selected areas of the District where there is demand for transit services which BART cannot meet. Transbay Basic provides direct service between San Francisco and major East Bay areas that are not well served by BART; the service operates all day at a medium to high frequency on a local and/or limited stop basis.

Table 5-A (cont.)

BART

Frequency Standard

LINE

TIME PERIOD	Pittsburg/ Bay Point Colma	Dublin/ Pleasanton Daly City	Fremont Daly City	Richmond Daly City *	Downtown San Francisco (City Center)
Weekday Peak	5	15	15	15	2.7
Weekday Mid-day	15	15	15	15	3.8
Weekday Night	20	20	--	--	10.0
Saturday Day	20	20	20	20	5.0
Saturday Night	20	20	--	--	10.0
Sunday/Holiday all day	20	20	--	--	10.0

Coverage Standard

BART rail service is provided between the hours of 4:00 a.m. and approximately 1:30 a.m. Monday through Friday, 6 a.m. to approximately 1:30 a.m. on Saturdays, and 8 a.m. to approximately 1:30 a.m. on Sundays and major holidays. Closings for individual stations are timed with the schedule for the last train beginning at approximately midnight.

BART has eight stations in San Francisco: Four spaced a half mile apart on Market Street and four at variable distances in the southwestern part of the City.

*Peak period service is to Colma.

Table 5-A (cont.)

CALTRAIN

Frequency Standard
30-minute headways during the peak, supplemented by express service at up to 5 minute headways.

1 hour headways off-peak, 30-minute headways on weekday midday service

Coverage Standard
The Caltrain system operates on a 77.2-mile route between San Francisco and Gilroy. There are 35 stations in the 19 cities that Caltrain serves, including four in San Francisco. Stations are spaced an average of 2.3 miles apart on Caltrain's route.

GOLDEN GATE TRANSIT

Frequency Standard

SERVICE TYPE	TIME PERIOD Peak	Base
Commute Bus	--[1]	--
Basic Service Bus	30	60
Larkspur Ferry	30	2 hrs.
Sausalito Ferry	70	1.5 hrs.

Coverage Standard

Commute bus routes operate weekdays, in the peak travel direction, between residential areas in Marin and Sonoma Counties and the San Francisco Finance District and Civic Center.

Basic service routes operate all day, seven days a week, between the Transbay Terminal and Civic Center in San Francisco and various suburban centers within Marin and Sonoma Counties.

The Sausalito Ferry operates with one boat and can only provide service as quickly as it can travel back and forth between Sausalito and San Francisco, usually an hour and a half.

[1] For commute bus service, Golden Gate Transit's policy is to provide as many buses needed in order to meet demand. Currently, there are 22 bus lines providing express commute service to/from San Francisco at frequent intervals during peak commute hours Monday through Friday except holidays.

Table 5-A (cont.)

SAMTRANS

Frequency Standard

SERVICE TYPE	TIME PERIOD Peak	Base
Commute Bus	30	--
Basic Service Bus	30	60

Coverage Standard

Within walking distance (0.25 mile) of existing route, which covers the majority of urbanized San Mateo County.

Table 5-B
Citywide Mobility Study – Summary of Focus Group Results
Factors most critical to travel decision-making
(not in priority order)

Auto	▪ Parking Availability ▪ Congestion ▪ System Confusion (one-ways, etc.)
Bicycle	▪ Weather ▪ Street Slope/Grade ▪ Safety ▪ Pavement Conditions
Transit	▪ Convenience (reliability, door-to-door service) ▪ Time ▪ Personal Security ▪ Comfort (crowding, cleanliness)
Walk	▪ Personal Security ▪ Weather ▪ Need to Carry Items ▪ Distance

Table 5-C
Citywide Mobility Study
Average Rating of Important Improvements by Mode
Scale: 1 (least important) to 5 (most important)

Auto	Commute	Non-Commute
Reduce Peak Hour Congestion	4.2	3.9
Increase Neighborhood Parking	4.2	3.9
Improve Driver Safety/Education	4.1	4.2
Increase Downtown Parking	4.1	4.0
Improve Road Maintenance	3.9	3.5
Reduce Parking Costs	3.8	3.7
Reduce Congestion at Other Times (e.g. off-peak)	3.3	3.3

Bicycle	Commute	Non-Commute
More Routes/Lanes/Paths	4.5	4.4
Cleaner Streets	4.2	3.2
More Street Maintenance	4.1	3.9
Wider Bike Lanes	4.1	3.3
Bike Racks/Parking	3.5	3.6
More Education on Bike Rules	3.1	3.7
Showers/Changing Facilities	2.1	2.8

Pedestrian	Commute	Non-Commute
Better Sidewalk Maintenance	3.5	3.7
More Lighting	3.4	3.5
Cleaner Streets	3.4	3.7
More Trees	3.1	3.1
More Red Light Cameras	3.1	3.6
More Police/Security	2.9	3.5
More Crosswalks	2.9	2.9
More Sidewalk Activity	2.8	2.6
Wider Sidewalks	2.5	2.4
Less Sidewalk Activity	2.4	2.4
More Commercial Activity	2.2	2.6

Transit	Commute	Non-Commute
Better On-Time Performance	4.8	4.3
More Frequent Peak Service	4.5	3.8
Less Crowds On-Board	4.0	3.9
More Frequent Service – Other Times	3.9	4.0
Cleaner Vehicles	3.8	3.8
More Helpful Drivers/Better Info.	3.7	3.9
Safer Riding Conditions	3.5	3.8
Safer Walking Conditions	3.2	3.4
Route Closer to Destination	3.0	3.2
Route Closer to Home	2.8	2.8

Table 5-D
Tier 2 Performance Measures
Currently Under Development[2]

Auto
Performance Measures: ▪ Average A.M. CMP roadway Level of Service (LOS) ▪ Average P.M. CMP roadway Level of Service (LOS) ▪ # of accidents per mile of roadway ▪ # of accidents per thousand population plus employment **Explanatory Factors:** ▪ % CMP roadway miles (CMP roadway miles/all roadway miles)
Bicycle
Performance Measures: ▪ Average pavement condition – raveling[3] ▪ Average pavement condition – trenching[4] ▪ # of accidents per mile of roadway ▪ # of bicycle accidents per thousand population plus employment **Explanatory Factors:** ▪ Average slope of roadway ▪ Average slope of planned bicycle network ▪ % of roadway on the planned bicycle network ▪ % of bicycle network signage completed ▪ % of bicycle network capital improvements completed[5]

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[2] The Authority Board adopted the first set of Tier 2 performance measures in August 1998. The measures listed above are those adopted by the Board, modified to reflect data availability and testing efforts to date. These revised measures and possibly additional measures will be presented to the Board for review and approval in the first quarter of 2002, along with the first system performance report.

[3] *Raveling* describes the severity and extent of surface erosion from weathering and traffic. A score of 16 represents "average" conditions. Higher numbers indicate worse conditions.

[4] *Trenches* occur when cuts are made into the paved roadway surface.

Table 5-D Continued
Tier 2 Performance Measures
Currently Under Development

Pedestrian
Performance Measures: ▪ # of pedestrian accidents per mile of roadway ▪ # of pedestrian accidents per thousand population plus employment **Explanatory Factors:** ▪ Average slope of roadway
Transit
Performance Measures: ▪ # of transit accidents per 1 million vehicle miles (i.e., safety) ▪ # of transit accidents per thousand population plus employment ▪ Consistency of service AM peak ▪ Consistency of service PM peak ▪ % of runs missed (i.e., reliability) ▪ # of incidents per 1 million vehicle miles (i.e., personal security) ▪ # of incidents per 100,000 vehicle trips (i.e, personal security) **Explanatory Factors:** ▪ Runs per week (Muni) ▪ Runs per week (all transit operators)

[5] Capital improvements to the bicycle network include projects such as construction of bike paths and wide curb lanes.

Table 5-E MEASURES OF TRANSIT SERVICE PERFORMANCE	
Performance Characteristic Addressed	**Performance Measure Proposed**
1. Efficiency	Cost per revenue vehicle hour
2. Efficiency	Cost per passenger
3. Efficiency	Cost per passenger mile
4. Efficiency	Revenue Vehicle Hours per Employee
6. Effectiveness	Passengers per Revenue Vehicle Hour
6. Effectiveness	Passengers per Revenue Vehicle Mile
7. Service Reliability	Percent of scheduled runs missed
8. Service Reliability	Percent of scheduled runs on time

6. Work Program Items - Key Milestones

- Present annual performance report to the Authority Board (for input to the Countywide Transportation Plan) – By first quarter 2002

- Identify other Tier 2 performance measures through consultation with City Departments, transit operators and other agencies - Ongoing

- Present recommendations for new and/or revised multimodal performance measures for Board approval - By June 2002

CHAPTER 6

TRAVEL DEMAND MANAGEMENT ELEMENT

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **City Policy Framework**
- **Housing and Employment Balance**
- **Relationship of Travel Demand Management Activities to Air Quality Improvement Efforts**
- **Work Program - Key Milestones**

1. Legislative Requirements

California Government Code Section 65089 (b)(3) requires development of a "...travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs." Parking cash-out programs can be considered as well. Each local jurisdiction was expected to adopt a Trip Reduction and Travel Demand Ordinance that incorporates these policies no later than November 1992.

Section 65088.1 of the Government Code and section 43845 of the Health and Safety Code require CMAs to consider and define a parking cash-out program as: an employer funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. Parking subsidy means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space. Section 43845 of the Health and Safety Code further specifies that the parking cash-out programs apply to employers of 50 or more persons in air basins designated as non-attainment areas under the State's Clean Air Plan.

In addition, Regulation 13, Rule 1, adopted on December 16, 1993, by the Bay Area Air Quality Management District (BAAQMD) in response to the mandates in the California Clean Air Act (CCAA), established a requirement for the development of trip reduction programs for all large public and private employers, defined as those with 100 or more employees at a single work site. In September 1995, however, the Legislature passed SB 437 (Lewis), which prohibits local jurisdictions, air districts or CMAs from imposing employer-based trip reduction mandates unless explicitly called for in federal law.

2. Legislative Intent and Application to San Francisco

The travel demand management element is a key feature of the CMP legislation. While the land use impacts analysis program and level-of-service monitoring activities fulfill primarily a diagnostic function, identifying potential or actual congestion problems so that solutions can be developed, the travel demand management element encourages the establishment of local policy (i.e., trip reduction ordinances) coordinated at the subregional (county) level, explicitly aimed at curbing congestion by promoting changes in trip-making behavior affecting both the nature of travel (as in staggered work hours), as well as the choice of travel mode (as in transit and shared rides instead of solo driving).

The requirement for local jurisdictions to consider parking cash-out programs as part of their trip reduction efforts, a 1992 addition to the original CMP legislation, aims at institutionalizing the notion of balance between the level of subsidy for different modes of transportation. Free parking at the work site, a traditional attribute of most employment opportunities (except in the urban core), is to be reconsidered. Transportation cost is redefined as a kind of employer-paid benefit, and employees can choose to use their transportation allowance to, for instance, pay for parking at the work site, pay for transit fare, or to participate in a vanpool. Charging the users the true cost of parking, it is argued, makes other options economically thinkable, and possibly even more attractive than driving alone. Issues of equity, feasibility and timing of implementation remain to be addressed, especially in suburban locations where transit service is usually not in place or must first be vastly improved before it can become a viable commute option. The City's parking policies, including a 25% tax on all off-street parking, are geared to discourage access into downtown by single occupant vehicles.

3. City Policy Framework

While San Francisco does not have an official citywide travel demand management ordinance, over the last two decades the City has adopted a variety of policies designed to discourage travel by single-occupant automobile and promote other transportation alternatives. As a result the City was able to accommodate unprecedented growth in travel demand without significantly increasing investment in highway and street capacity expansion. In 1973, the City Planning Commission and the Board of Supervisors adopted the Transit First policy, giving priority to transit investment versus highway investment geared toward accommodating the single occupant automobile. Over the next twenty years, this policy evolved into a set of strategies advocating the use of transit and other alternative modes of transportation. Transit First is San Francisco's pioneering and comprehensive response to the need for trip reduction and travel demand management. The City's Transit First Policy is documented in the Transportation Element of the City's General Plan, the Planning Code, and other City ordinances.

The following sections describe in detail the General Plan's objectives and policies that focus on the Transit First policy. City Planning Code and other City ordinances intended to implement this policy are also discussed. Following that, a section of this chapter discusses policies intended to reduce travel demand by addressing the balance between housing supply and employment growth. The final section examines the relationship of San Francisco's travel demand policies to regional recommendations for Transportation Control Measures designed to achieve air quality objectives.

A. Objectives and Policies in the General Plan

The following objectives and policies of the Transportation Element of the General Plan focus on the City's policy toward a transit oriented solution to growth in travel demand, as well as the City's comprehensive transportation planning approach, which discourages the use of the single-occupant automobile.

Objective 10: **promotes the use of multimodal performance measures** to assess the performance of the transportation system, and places an emphasis on movement of people and goods over vehicle throughput.

Objective 11 : **gives priority to public transit** as the means of meeting transportation needs, and calls for the coordination and linkage of regional and local transportation systems.

Objective 12: calls for the **development of transportation demand management (TDM) programs** to help reduce the number of single occupant vehicle trips and thereby contribute to reduced congestion and improved air quality.

Objective 13: promotes **the development of marketing strategies** (e.g. advertising, providing transit information) to encourage use of transit and other alternatives to the single occupant automobile for non-work trips such as shopping and recreational trips.

Objective 14: calls for **development and implementation of transportation system management (TSM) strategies** to improve the efficiency of existing transportation facilities.

Objective 15: promotes the **use of transportation system management (TSM) measures** to reduce the impacts of automobile traffic on residential streets.

Objective 16: encourages **development of programs aimed at reducing parking demand** at employment centers citywide.

Objective 17: **discourages new long-term parking in the downtown area** and **promotes efficient use of existing parking facilities.**

B. Existing City Ordinances

This section describes the Planning Code and other City ordinances dealing with implementation measures that support the Transit First policy, and other strategies developed by the City to discourage the use of the single-occupant automobile.

B.1. The Planning Code

a. Parking

Unlike most central cities, San Francisco has never required the provision of a minimum number of parking spaces as a condition for approval of downtown commercial development. This approach complements the City's Transit First policy. Other Policies adopted by the City also support this concept, which has been used to discourage and effectively control the growth of automobile travel in the downtown area. A comparison between 1965 and 1983 cordon counts of all vehicles entering San Francisco's greater downtown area indicates that vehicular traffic actually *decreased* slightly (about 3.7%). During that period approximately 30 million square feet of new office space were built in the downtown area, and just between 1970 and 1980 citywide employment increased by approximately 100,000 jobs, but the number of parking spaces in downtown remained about the same. Results from the 1987 update of parking counts are consistent with this pattern.

The following paragraphs reference the Planning Code Sections that address parking policy:

Section 204.5(c) establishes that parking is allowed (though not required) in the downtown area as an accessory use. The maximum garage area for accessory parking is limited to 7% of the gross floor area of the building. Any amount above the permitted 7% requires a Conditional Use permit authorization.

Section 155(g) establishes a rate structure for parking open to the general public in the downtown area. The rate structure is intended to discourage long-term parking for all uses, with the exception of residential and hotel uses. The rate charged for four hours of parking cannot exceed four times the rate for the first hour. The rate for eight or more hours of parking cannot be less than 10 times the rate for the first hour. No discount parking is permitted for weekly, monthly or similar time-specific periods. The rate structure established under this section does not apply to stand-alone parking garages, i.e., parking that is not approved as a part of another development, although the City Planning Commission can use discretionary powers to apply the rate structure to stand-alone garages.

Section 156(h) permits new parking lots within the downtown area only as temporary uses, for a two-year period, and requires a Conditional Use permit authorization.

Section 161 eliminates parking requirements for commercial uses in dense districts which are well served by transit, including downtown, Chinatown, and Jackson Square, and reduces parking requirements in other districts based on similar criteria.
Section 223(m-p) allows parking garages as principal land uses in districts zoned C-3 (downtown commercial/office), but only by Conditional Use permit.

b. Transportation Management Programs (TMP) and Transportation Brokerage Services (TBS)

The purpose of these programs is to ensure that adequate measures are taken to minimize the transportation impacts caused by employment growth at major job centers. The programs are carried out by facilitating the use of transit, promoting ridesharing, and by otherwise encouraging reductions in commute travel by single-occupant automobile.

Section 163 of the Planning Code establishes a requirement for Transportation Management Programs (TMP) and Transportation Brokerage Services (TBS) for office buildings in the greater downtown area (C-3 districts) and the South of Market area. The Planning Code defines C-3 as the zoning districts in the downtown area that allow major office, retail, commercial and downtown support developments. Outside of the downtown area, these programs apply to office and commercial-industrial districts and to certain retail developments within the Mission Bay Specific Plan area. Although not categorically subject to a specific Planning Code requirement, major institutions (e.g., hospitals and universities) subject to institutional master plans can also be required to provide on-site TMP and TBS, depending on the magnitude of development and anticipated transportation impacts. These requirements are imposed when an institution requests approval of building permits pursuant to its Institutional Master Plan.

b.i. General Program Requirements.

New buildings above 100,000 square feet of gross floor area in the C-3 districts in the downtown area, and above 25,000 square feet of gross floor area in the South of Market area, are required to provide on-site TMP and TBS for the lifetime of the project. The TMP and the TBS requirements are established in the Developer's Manual, entitled "Transportation Management Programs in Greater Downtown: Developer's Manual for Procedures and Performance Criteria".

Major institutions subject to the institutional master plan procedures are encouraged to provide on-site TMP and TBS. The TMP and TBS guidelines for institutions are established in a report entitled "Transportation Management Program Reporting Requirements for Institutions".

The TMP and TBS are designed to:

a. Promote and coordinate effective and efficient use of transit by office tenants, institutions and their employees, including the provision of transit information and on-site sale of transit passes;

b. Promote and coordinate ridesharing activities for employees at each office building and institution;

c. Reduce parking demand and ensure the proper and most efficient use of on-site or off-site parking;

d. Promote coordinated flextime or staggered work hours to more evenly distribute the arrival and departure times of employees, during peak commute periods; and

e. Participate in networks with providers of transportation brokerage services from other downtown office buildings and major institutions to promote common commute alternative objectives.

b.ii. Greater Downtown TMP and TBS Program Requirements - Mandated & Voluntary

Under the "Developer's Manual" the project owner is *required* to:

a. Designate a permanent **Transportation Management Coordinator (TMC)** to comply with reporting requirements, to develop and implement parking plans, and to provide oversight and management for the program.

   For buildings with parking, the TMC is required to submit a Parking Management Plan (PMP) to be reviewed and approved by the Department of City Planning. The parking plan should allocate parking among various users such as short-term, handicapped, carpools, vanpools and bicycles. The PMP should provide a plan to market preferential on-site parking for carpools and vanpools. Issuance of long-term parking leases is limited to the employees of the building.

b. Provide permanent **Transportation Brokerage Services.** Overall program marketing, transit pass sales and promotion, ridematching, management and biennial administration of surveys regarding employee commute behavior, are all examples of transportation brokerage functions.

Under the "Institutions' Reporting Guidelines," every affected institution is *encouraged* to provide:

a. Transportation Coordination for oversight and management of all aspects of the institution's transportation programs performed by a designated Transportation Coordinator. The Transportation Coordinator sets direction and monitors parking policies. For buildings providing parking, a Parking Management Plan (PMP) is required. The PMP should include policies ranging from the pricing of parking to the allocation of parking spaces.

b. Transportation Brokerage for day-to-day administration of the institution's TSM programs. Overall program marketing, transit pass sales and promotion, ridematching, and biennial administration of surveys regarding employee commute habits are all examples of transportation brokerage functions.

b.iii. Transportation Management Association (TMA)

The Transportation Management Association of San Francisco was established in 1989. The TMA is a non-profit association of building owners and managers that coordinates and facilitates implementation of the TSM programs of member buildings. Presently there are approximately 70 buildings in the greater downtown area with TSM requirements, of which 46 buildings have joined the TMA organization.

b.iv. Mission Bay TMP and TBS Requirements

Similar to the requirements for the downtown area, the Mission Bay Specific Plan requires as project mitigations the preparation of a Transportation Systems Management Plan, and the establishment of a Transportation Management Association and a Transportation Coordinating Committee.

B.2. The Transit Impact Development Fee

Enacted in 1981, the Downtown Transit Impact Development Fee (TIDF) ordinance assesses a fee of $5 per square foot on new or converted office space in the downtown area. The purpose of the TIDF is to help defray the costs of providing transit services to accommodate the trips generated by new development over its useful life. Specifically, new office development creates new work trips, which add to the already heavy utilization of the transportation system in the downtown area during peak periods and place a greater burden on the transit system. Given the lack of excess transit capacity at those times, ridership growth must be addressed through increased Muni service frequencies. Since 1981, the fee has generated approximately $93 million. Appendix VI contains a copy of the TIDF ordinance.

In May 2001, Nelson\Nygaard Consulting Associates produced a Transit Impact Development Fee Analysis Report for the Planning Department, which evaluated options for revising and improving the TIDF. The key recommendations of the report are as follows:

a. All types of non-residential development place a burden on Muni, not just office. Specifically, retail trips place a significant burden on Muni service. Therefore, the City should consider expanding the TIDF to include a broader range of non-residential development.

b. Development impacts transit in all parts of the city, not just downtown. Muni has had to make significant investments in expanding service throughout the city as a result of development moving away from the largely built-out downtown. Moreover, a substantial portion of new office development is expected to take place outside the existing fee boundary. Thus, expansion of the TIDF boundary to other parts of the City should be considered.

c. While the TIDF currently focuses on addressing impacts during the peak hour, development also impacts Muni during off-peak periods. Therefore, the City should consider making fee expenditure requirements more flexible.

d. The $5 per square foot fee cap does not accurately reflect the actual demand placed on transit as a result of new development. Studies conducted since 1983 have found that the fee was as much as 60 percent below the actual cost of providing service. The Nelson/Nygaard report recommends implementing a logical fee system based on actual service costs, and applied to different land use types based on their unique impacts. The report suggests $14 per square foot for office space and a fee for other uses ranging from $9 to $100 per square foot.

e. Revisions to the ordinance provide an additional opportunity to address administrative issues. Specifically, there is no existing mechanism to adjust the fee for inflation -- it has remained the same since 1981. In addition, the current ordinance provides a fee rebate when a building changes use. This is not a legal requirement and creates a potential liability. These administrative issues can be corrected along with other revisions to the ordinance.

While not specifically recommended in the Nelson/Nygaard report, another option for revising the TIDF would be to expand it to cover regional transit operators that serve the City, such as BART or Caltrain.

No action has yet been taken to revise the TIDF, but clearly there are many opportunities to refine the fee based on the clear nexus between development and impacts on transit, and the City's desire to ensure that transit is a viable travel option.

B.3. Other City Ordinances and Initiatives

To improve the transit system and to encourage the use of public transit and high occupancy vehicles, the following actions have been approved and implemented in the City:

a. A Transit-preferential street (TPS) program has been established to give priority to transit vehicles where conflicts with auto traffic occur, and to reduce transit delays. Figure 6-1 shows the existing TPS network. Bus-only lanes have been designated (generally for peak periods only) for the following streets in the downtown:

1st Street - Market to Howard
3rd Street - Stevenson to Townsend
4th Street - Harrison to King
Bush – Montgomery to Battery
Clay Street – Powell to Davis
Fremont Street - Mission to Market
Geary Street – Market to Gough

Market Street – 12th to 5th eastbound
Market Street -8th to South Van Ness westbound
Mission Street – 5th to Beale eastbound
Mission Street – Main to 4th westbound
O'Farrell Street - Gough to Powell
Post Street - Gough to Grant
Sacramento Street - Drumm to Larkin
Sansome – Bush to Washington (transit-commercial, contra-flow)
Starr King - Gough to Franklin
Stockton Street - Bush to O'Farrell
Sutter Street - Powell to Gough

b. Exclusive Rights of Way have been established for cable cars on Powell Street from Market to Ellis, California to Sutter, and the northern half block from Francisco to Bay. For streetcars, exclusive rights of ways are on the M-Ocean View between St. Francis Circle and Junipero Serra; on the N-Judah between 9th and 19th Avenues; on the K-Ingleside between St. Francis Circle and Ocean Avenue; on the J-Church through Dolores Park between 18th and 20th Streets and between 20th and 22nd Street, and on San Jose Avenue between Randall and Tingley. The Muni Metro Extension, located in the South of Market, features exclusive right-of-way for its entire length. The F-Line extension to Fisherman's Wharf features exclusive right-of-way in The Embarcadero Roadway.

c. In order to increase transit speed, parking is prohibited during peak hours on transit-oriented streets with heavy traffic volumes.

d. Transit signal pre-emption equipment, consolidation and relocation of transit stops, and increased enforcement of parking regulations to allow buses to move more smoothly are additional measures taken by the City to improve transit system operations.

e. Bus bulbs have been installed on congested streets such as Polk, Castro and Stockton Streets to improve passenger boarding, and to reduce travel time by eliminating the time needed for buses to pull into and away from the curb at bus stops.

f. Median islands have been installed for use as bus and streetcar stops on Market Street, to better utilize curb space and improve transit operating efficiency.

g. Residential Parking Permit programs in the neighborhoods surrounding institutions and neighborhood commercial districts serve to control and discourage all-day free parking for the employees working in those areas.

h. The Planning Commission adopted a formal policy to allocate a percentage of parking for office buildings in the downtown area to carpool and vanpool parking.

i. For purposes of priority parking, the Mission Bay Plan defines carpools and vanpools as a minimum of three persons per vehicle, compared to the two persons per vehicle generally used in the Bay Area.

j. A 25 percent tax is imposed on all off-street parking fees. This tax significantly increases the cost of parking and therefore discourages travel by single-occupant automobile.

k. With the passage of the Proposition B 1/2 ¢ sales tax enacted by the City in 1989, funding for many transportation projects and programs has been assured. Sixty percent of the approximately $1 billion generated by the sales tax over the next 20 years will be allocated to transit projects and programs, eight percent will be used for paratransit, and an additional two percent will fund Transportation System Management programs.

l. During September 1993, the City recruited a Commute Coordinator to deal with the transportation needs of the 30,000 employees of the City and County of San Francisco.

m. The Department of Parking and Traffic (DPT) promotes use of carpools and vanpools during the morning and evening commutes. For trips with downtown destinations, DPT provides carpool drop-off areas on Howard Street near Fremont. DPT also administers a program through which major employers provide inexpensive carpool parking ($27/yr) to their employees. California Pacific Medical Center, San Francisco General Hospital, and the AT&T lot at 4th and Folsom currently participate in the program. Low cost ($27/yr) vanpool parking areas are also available along Folsom, Washington, Broadway, Otis and in the Civic Center area (currently along Van Ness Avenue). In addition, City regulations now allow permitted vanpool parking at any parking meter of 60 minutes or more.

To promote carpooling during the evening commute, in 1995 DPT coordinated with Caltrans to expand HOV evening hours from 4 to 6 pm to 3:30 to 7 pm. This has resulted in increased carpool use after 6 p.m. In addition, DPT has continued to set aside curb space for casual carpool pick-up areas along Beale Street between Howard and Folsom Streets, which were originally created during the September 1997 BART strike. This location provides direct access to the Sterling Street HOV on-ramp.

n. Parking control officers are posted at congested intersections to prevent gridlock during p.m. peak periods. DPT also has in place an aggressive double-parking prevention and enforcement program, citing and towing offending vehicles.

o. City Carshare is a non-profit organization established in 1999 that offers vehicles for short-term use at affordable per-use rates. Car sharing gives people the option of paying for a car only when they need it, reducing vehicle use costs and making car sharing a viable alternative to car ownership. The City has supported the Carshare program by helping secure parking spaces, as well as by encouraging developers to include City Carshare in their projects in exchange for reduced parking requirements. City Carshare currently has 900 enrolled members sharing 33 vehicles in 11 neighborhood locations throughout the city. The organization plans to expand to the East Bay later this year.

4. Housing And Employment Balance

Downtown San Francisco has the largest concentration of commercial activity and employment in the Bay Region. Much of the downtown employment growth occurred in the 1970-79 period. During that time about 100,000 new jobs were created and about 11,300 net new residential units were built in the City. For each 100 new jobs created in the city about 11 net new residential units were built during this period. This attracted many new workers from the region and significantly increased the number of suburban commuters into the City.

During the 1980's the rate of downtown employment growth has decreased. At the same time, compared to the previous decade, more housing units have been built relative to the amount of employment added. This has resulted in fewer commute trips per new job created. During the 1980-1989 period about 14,100 new jobs and 12,250 net new residential units were created in the City. This works out to about 87 net new housing units built for every 100 new jobs created during this period. This trend continued through the early 1990s. However, the late 1990s experienced dramatic employment growth, accompanied by only a modest increase in residential units, which probably balanced out the earlier trend.

It has also been the City's policy in recent years to promote new housing in conjunction with new developments. Presently there are established housing requirements for new office buildings in the downtown area. Section 313.3 of the Planning Code, the Office/Affordable Housing Production Program (OAHPP) imposes housing requirements for buildings above 25,000 square feet of office space. Under this Section the project sponsor is required to either build housing at a rate of 38.6 units per 100,000 square feet of office, or pay $7.20 per square foot to a housing developer to construct housing, or pay an in-lieu fee to the city-wide Affordable Housing Fund. OAHPP requires 62 percent of the units to be allocated for low or moderate-income housing.

Extensive rezonings undertaken in the city during 1980's have also actively promoted new residential development. The Downtown Plan, as well as the plans for Rincon Hill, North of Market, Chinatown, Neighborhood Commercial, Van Ness Avenue, South of Market, and South Beach, all have measures to retain and increase residential development. The Mission Bay project alone will add 6,090 new residential units in conjunction with the commercial development.

5. Relationship Of Travel Demand Management Activities To Air Quality Improvement Efforts

A. Transportation Control Measures

Under the California Clean Air Act (CCAA), all regions of the State that do not attain air quality standards fall under one of the following three designations for ozone: moderate, serious, severe, or extreme; and under either of two designations for carbon monoxide: moderate or serious. Timelines for projected attainment of air quality standards are associated with each designation. The Bay Area is considered a serious non-attainment area. All non-attainment areas classified as serious are required to reduce pollutant emissions by five percent per year. If this is not possible they are to implement all "feasible measures" to reduce emissions. The Bay Area also exceeds State standards for particulate matter, but is not required to meet these standards.

As required by the CCAA, in 1991 the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD) and the Metropolitan Transportation Commission (MTC), jointly prepared the Bay Area Clean Air Plan. In addition to the air quality controls proposed for the Bay Area to reduce the *amount of emissions* per vehicle for each mile driven (known as mobile source controls), there are also measures which seek to reduce the total *number of trips* and miles traveled, better known as Transportation Control Measures (TCM's). The MTC has taken the lead in the region for development of a TCM Plan, which responds to both State and Federal air quality requirements. The TCM Plan has been reviewed and revised by the BAAQMD and it is referenced in the Bay Area Clean Air Plan.

The TCM Plan has three major components:

Phase 1: Reasonably available TCMs that are based on existing authority and funding - Implementation by 1997-2000.

Phase 2: Additional mobility, traffic operations and incentive package which requires new legislative authority and funding - Implementation by 2001-2003.

Phase 3: Market-based TCMs, which also require authorizing legislation, with the exception of parking management - Implementation - beyond 2003.

Local agencies are expected to incorporate these TCMs into planning and implementation for transportation and land use programs. The region, through the MTC, is held responsible for overall progress toward the stated goals. The CMP process provides an opportunity to integrate local planning and programming into the regional air quality planning process.

MTC, ABAG, and the BAAQMD are in the process of trying to secure EPA approval of the 2001 Ozone Attainment Plan. The new plan commits to implementing new and continuing TCMs.

Appendix VII provides a listing of regional TCMs and discusses how San Francisco's congestion management strategies contribute to, or reinforce these measures. Among the TCMs implemented by San Francisco are parking management and pricing rules, which are considered Phase 3 measures.

B. Regulation 13, Rule 1 (BAAQMD) - San Francisco's Demonstration of Compliance

Under Rule 1 of the BAAQMD's Regulation 13, adopted in December 1992, Bay Area employers with 100 or more employees at a single work site were required to develop programs that encourage employees to use alternative modes of transportation, such as transit, carpooling, biking, or walking, to reduce drive-alone commuting. The Rule, which affected approximately 4,000 work sites, and about half of all employees in the Bay Area, established average vehicle ridership (AVR) standards for the region based on the relative density of development and level of available transit service in each subregion. For San Francisco, the 1999 AVR goal was set at 2.5 commuters per private vehicle for the Northeast Quadrant, including downtown; and 1.5 for the rest of the City. In an effort to provide some flexibility to cities that had invested in transportation alternatives in the past, the BAAQMD included a provision allowing a jurisdiction to demonstrate that the 1999 AVR goals were currently met for all affected work sites within its geographic area.

In 1992, the Authority, in conjunction with the Public Utilities Commission (PUC) funded two citywide travel behavior surveys, one focused on randomly selected work sites, and the other one centered on visitor travel behavior. Both surveys were conducted by the Planning Department. The work trip survey determined that, on average, San Francisco businesses already exceed the BAAQMD's standards for 1999, a finding that clearly reflects the City's commitment to transit investment over many decades. In light of the survey's results the BAAQMD determined that work sites located in San Francisco would not be subject to Rule 1 through 1995.

In March/May 1995, the Authority funded and conducted the 1995 Citywide Travel Behavior Survey (CTBS). The survey involved participation by more than 60 large employers (100 or more employees per work site), but it also targeted over 150 medium and small-size employers (less than 100 employees per work site) citywide. More than 10,000 responses were received and processed, making the CTBS the most exhaustive database of citywide work-related travel behavior in the City. The information has been incorporated into the Authority's Transportation Analysis Database, and has been used in Strategic Analysis Reports, system performance investigations, and other CMP-related studies.

For the purposes of the Rule, the BAAQMD has divided San Francisco into two zones where Zone 1 is the northeast quadrant of the City including Fisherman's Wharf, Chinatown, North Beach, the financial district, and the south of Market area. The rest of the City is in Zone 2. The results of the 1995 CTBS corroborate once again that Zone 1 continues to comply with the 1999 standards set by Regulation 13, Rule 1. The results indicate that Zone 2 has met the 1997 standards set by the Rule.

The passage of SB 437 (Lewis) by the Legislature in September effectively prohibits the imposition of employer-based trip reduction requirements unless called for in Federal law. This has eliminated the need for further demonstrations of compliance with average vehicle ridership (AVR) standards and other related requirements contained in Regulation 13, Rule 1.

6. Work Program Items - Key Milestones

- Continue to monitor ongoing travel demand management activities by City departments.

Figure 6-1
Transit Preferential Street Network

Transit Preferential Street Network
Other Arterials

0 0.5 Miles

Data Sources:
SFCTA Transportation Analysis Database
Basemap - San Francisco Department of Public Works

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CHAPTER 7

LAND USE IMPACTS ANALYSIS PROGRAM

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Land Use as a Determinant of Transportation Demand**
- **Institutional Framework for a CMP Land Use Analysis Program**
- **Relationship To The General Plan and Long-Range Transportation Plan**
- **Work Program Items - Key Milestones**

1. Legislative Requirements

The California Government Code section 65089 (b) (4) requires that Congestion Management Programs (CMPs) include a program to analyze the impacts on regional transportation systems of land use decisions made by local jurisdictions. These analyses must include estimates of the costs associated with mitigating the impacts, and involve the measurement of impacts using performance measures selected for the CMP. The cost estimates are to exclude costs associated with inter-regional travel, and provide credit for public or private contributions to regional transportation system improvements. The legislation specifies that land use analysis programs should be coordinated with California Environmental Quality Act (CEQA) efforts, wherever applicable.
The CMP legislation also requires the San Francisco County Transportation Authority (the Authority), as the Congestion Management Agency to "...develop a uniform database on traffic impacts for use in a countywide transportation computer model..." that will be used "...to determine the quantitative impacts of development on the circulation system... "(California Government Code section 65089 (c)). The legislation specifies that the database must be consistent with the databases and modeling methodology used by regional planning agencies, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). This consistency is critical if San Francisco is to remain in compliance with the CMP and eligible for several significant sources of transportation project funding.

The Authority's Transportation Analysis Database (TAD) including ABAG Projections data, updated CMP networks and numerous other data items (such as roadway level of service, transit ridership, travel behavior survey results, etc.) constitutes the uniform database for San Francisco. In addition, the Authority has developed a new activity-based travel demand forecasting model to be used in combination with the uniform database. This is further detailed in Chapter 10.

2. Legislative Intent and Application to San Francisco

The intent of the legislative requirement for a CMP-based land use analysis program is to establish a direct connection between land development decisions and proposed improvements to the regional transportation system. This connection already exists at the regional level in MTC's Regional Transportation Plan, which links long-range planning for transportation investment with estimates of land development based on regional demographic growth and economic development. At the local level this connection will be made through the CMP Land Use Impacts Analysis Program, which involves the following components:

a) a Countywide Transportation Plan with a long-range horizon (20-plus years), which will identify specific and categorical priorities for funding of transportation projects in San Francisco, and will be consistent with, and informed by, the General Plan and all of its pertinent elements and policies;

b) the Capital Improvement Program of the CMP (see Chapter 8), which is a 7-year programming document, to serve as the implementation mechanism for the priorities established in the long range transportation plan; and

c) the set of existing local regulations including specific plans, fees and mitigation measures designed to address project-specific transportation impacts within the policy and priority framework of the General Plan, the long range transportation plan and the Capital Improvement Program of the CMP, described in a) and b) above.

The City already has in place an exacting process for evaluating the transportation impacts of land development proposals. This process, which ensures the City's compliance with state and federal environmental review requirements, is the responsibility of the Planning Department. The technical guidelines that address this process in detail are included in Appendix V. One key aspect of the CMP approach to land use impacts analysis is that, pursuant to state law, the Authority will also be responsible for reviewing and determining consistency of any sub-area models with the citywide model.

The primary purpose of the land use analysis program is, therefore, to inform decisions on the supply of transportation infrastructure to the City. This program adds no new requirements to the existing local project environmental review process, but it provides a long-term transportation investment policy context for local environmental review information.

Now that the San Francisco Travel Demand Forecasting Model has been adopted, we will be working on a fourth component to the CMP Land Use Impacts Analysis Program: a cumulative land use impacts analysis methodology which incorporates land use inputs from the Planning Department and the Redevelopment Agency and forecasts impacts on transportation system performances using the travel demand forecasting model.

NOTE:
California Government Code Section 65089(b)(4) requires the land use program to assess the impacts of land development on regional transportation systems. In the 1991 San Francisco CMP this was interpreted to mean impacts on the CMP roadway network. However, the federal Intermodal Surface Transportation Efficiency Act (ISTEA), passed in 1991, explicitly requires the development of a metropolitan transportation system (MTS), including both transit and highways. The Metropolitan Transportation Commission has contracted with the San Francisco County Transportation Authority, acting as Congestion Management Agency to help develop the MTS and to use the CMP process to link land development decisions to impacts on the MTS. For purposes of the land use analysis program, the San Francisco CMP will use the San Francisco component of the MTS, but conformance with roadway level of service (LOS) standards will continue to be assessed using the CMP roadway network, which is a subset of the MTS.

3. Land Use as a Determinant of Transportation Demand

This section provides background on land use trends and their influence on transportation demand in the City. San Francisco established itself as the region's central city during the Gold Rush era. It has retained its role as the most concentrated center of employment as the region has evolved. San Francisco's peninsular location and small size, approximately 49 square miles, have resulted in a close relationship between the City's development patterns and its transportation network. There have been significant numbers of non-resident commuters into the City for over a century. San Francisco has been able to maintain one of the highest levels of transit use among U.S. cities because of its relatively high-density development, and because topography and geography limit vehicular access routes to and from the City.

In recent decades, an increasing amount of population and employment growth has occurred throughout the region. Back office, manufacturing, wholesale trade, warehousing, and general retail employment has grown faster in the East Bay and South Bay than in the City. However, San Francisco has remained the region's dominant employment center for middle and upper level office and administrative functions, specialty retail, and other jobs dependent upon direct transactional activities. San Francisco's daytime population is about 1.1 million, compared with a resident population of about 746,000, and non-resident commuters fill about half of its approximately 580,000 jobs. Transit and ridesharing currently account for about 31 percent and 13 percent respectively of all commuter travel in San Francisco, which contrast with about 10 percent transit use and 17 percent ridesharing for the entire Bay Area region[1].

During the 1980s, San Francisco actively promoted new residential development. Extensive revisions to the City's General Plan and rezonings were undertaken. Each of these land use plans - the Downtown Plan, Rincon Hill, North of Market, Chinatown, Neighborhood Commercial, Van Ness Avenue, South of Market, and Mission Bay - incorporated measures to retain and enhance opportunities for residential development. In addition, housing development has been promoted by the policies of the San Francisco Redevelopment Agency in the Rincon Point/South Beach, Yerba Buena Center, Transbay and the Western Addition Redevelopment Plan Areas.

In the past few years the City has approved a re-scoped Mission Bay project, as well as plans for a new UCSF campus in that area. The new 3rd Street Light Rail Transit line (now entering the construction phase), and the recently completed Muni Metro extension provide the ideal transportation complement to these projects, and ensure that transit will continue to address a large share of transportation needs in this key growth area in the City.

San Francisco's continued role as a regional employment center and its continued policy of housing development have had an impact on the demand for transportation in the City. A primary mission of the Authority is to strategize investment in the city's transportation infrastructure to meet this demand. Infrastructure investment is intended both to address future growth in transportation demand and to improve the city's current transportation system.

The Authority must approach this mission with extremely limited local, state and federal funding. The setting of priorities and allocation of these transportation funds requires a long-term assessment of demand for transit and roadway capacity. The Authority's Land Use Impact Analysis Program is intended to evaluate the overall demand generated by land use changes and propose appropriate investment strategies.

4. Institutional Framework for a CMP Land Use Analysis Program

Since San Francisco's approach to conformance with the CMP land use impacts analysis requirements is based on the existing process administered by the Planning Department, it is important to describe the existing land use analysis process and institutional roles. It should be noted that the Planning Department issued

[1] Source for the mode shares: *Commute Profile 2001*, prepared by Rides for Bay Area Commuters, Inc. September 2001.

Interim Transportation Impact Analysis Guidelines for Environmental Review in January 2000. These guidelines are in use, but have not been finalized. Once the revised guidelines are approved, the CMP's land use impacts analysis program will be amended as necessary.

4.1. Agency Responsibilities

This section describes the institutional parameters that frame the City's process for reviewing land development impacts on the transportation network. San Francisco is a Charter City and it has a consolidated city and county government. An eleven-member Board of Supervisors serves as the legislative body for the City's unified city and county government. The City Planning Commission (CPC) has responsibility for land use decision-making throughout the City. The Mayor appoints the seven members of the CPC. Among the responsibilities of the CPC are the following:

- Exclusive authority to act on General Plan policies and area land use plans (per City Charter);
- Holding public hearings on all appeals to Negative Declaration determinations and certification of all local Environmental Impact Reports;
- Discretionary actions on Conditional Use permits. (Which can be appealed to the Board of Supervisors) and decisions by the Zoning Administrator, Discretionary Reviews and others that can be appealed to the Board of Appeals.

In addition, both the CPC and the Board of Supervisors must approve all subdivisions of five or more lots and all rezonings.

City departments involved in transportation activities are: the Planning Department, which has primary responsibility for assessment of the transportation impacts of development proposals, to determine consistency with land use and transportation policies in the General Plan, and for coordination with other City departments which provide transportation services; the Municipal Transportation Agency (Muni), which operates an extensive streetcar, cable car, trolley coach, and diesel bus transit network within San Francisco; the Department of Parking and Traffic, which was created in July 1990 to manage City off-street and on-street parking, parking enforcement, and traffic engineering activities consistent with the City's Transit First policies; and the Department of Public Works (DPW), which has retained responsibility for street cleaning, maintenance, repair, and contract management affecting street and infrastructure. Each of these departments is an integral part of the City's governmental structure, and all ultimately report to the Mayor and the Board of Supervisors. Another entities influencing transportation and land use in the city are the San Francisco Redevelopment Agency and the Port of San Francisco.

The San Francisco County Transportation Authority was established as an independent agency to administer Proposition B, the funding program generated from passage of a new one-half cent sales tax for transit, roadway, bicycle and pedestrian projects. All members of the San Francisco Board of Supervisors serve on the Authority Board of Commissioners. The Authority has also been designated as the local Congestion Management Agency (CMA) for San Francisco. Pursuant to this designation, the Authority has duties and responsibilities to ensure that the City complies with state-mandated CMP requirements. Such responsibilities include, among others, the development of a methodology for land use impacts, and the creation of a uniform database for land use impacts analysis. For a detailed discussion of the genesis, roles and responsibilities of the Authority, please refer to Chapter 2.

4.2. Relationship to the General Plan

The General Plan is the transportation and land use policy blueprint for San Francisco. As a policy level document, the General Plan spells out the ultimate goals of the transportation planning process. Other General Plan elements also contain policy guidance directly or indirectly affecting transportation outcomes. The Authority, working within the General Plan framework, must strategize investments to optimize transportation infrastructure supply. This is necessary because the demand for transportation funding typically outstrips available funding by a 3 to 1 ratio.

The Authority's investment strategy must reconcile the General Plan goals and long-range Transportation Plan priorities with the changing picture of regional, state, and federal transportation funding policies. In determining the pace and priority of transportation improvements, the Authority takes into account City departments' individual priority lists and also considers the transportation implications of major land use trends.

4.3. The Relationship to the Long Range Countywide Transportation Plan

AB 1619, passed by the Assembly in 1994, is enabling legislation that stipulates that, if a long range countywide transportation plan is prepared, the CMA must do it. Pursuant to a Board of Supervisors action of December 1994, the Authority is responsible for preparation of such a plan, and for coordination of roles and responsibilities with City Departments. A Memorandum of Agreement (MOA), executed in December 1997, between the Authority and the Planning Department, clearly outlines roles and responsibilities for developing the plan. Development of the plan is underway and the draft version is expected to be completed in March 2002. The final Countywide Plan is expected to be presented to the Authority Board in July 2002.

As with the relationship between the CIP and the long-range Transportation Plan, land use analysis will also directly inform the strategy for long-term investments in transportation infrastructure. The difference is that the CIP is a 7-year document focused on near-term implementation, and the long-range transportation plan will set out a 20-year vision for transportation priorities and funding.

The periodic updates of the long-range plan and its list of investment priorities will be the main vehicle for addressing the transportation needs generated by land use changes in the City. In updating the long-range plan the Authority will use land use forecasts developed by the Planning Department (subject to regional requirements for consistency with ABAG), generate new estimates of future travel demand, and test alternative projects and investment strategies to address those future transportation needs. The detailed methodology for accomplishing this will be outlined as part of the development of the long-range plan.

5. Work Program Items - Key Milestones

The Authority will continue to work jointly with City departments and regional agencies, as part of development of the long range Countywide Transportation Plan, on the detailed methodology for analysis of future land use and investment scenarios. In addition, the Authority will:

- Review the San Francisco Travel Demand Forecasting Model and MTC regional model transportation network assumptions (for current, 5 and 10 year future scenarios), including transit service levels, and, in consultation with City departments, recommend changes to reconcile with the CIP and expected project delivery schedules – As needed

- Develop a rational and replicable approach to developing and updating San Francisco Model land use inputs that will support model application and analysis of project-level land use changes -- Ongoing

- Develop guidelines to help identify appropriate and inappropriate project-level model applications considering factors such as the scale of projects and current model capabilities – Ongoing

- Continue to develop applications of land use data within the TAD to multimodal performance measurement (e.g., the relationship of land use patterns to transit routing and coverage) -- Ongoing

- Continue to participate in ABAG's Regional Livability Footprint Project, and evaluate impacts of proposed land use changes.

CHAPTER 8

Capital Improvement Program

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Transportation Investment and System Performance**
- **CIP Components**
- **Relationship to Other Plans and Programming Documents**
- **The Authority's Capital Priorities Programming Process**
- **CIP Review and Amendment Procedures**
- **CIP Project Delivery**
- **Program Overview**
  - **Transit Program**
  - **Roadway Program**
  - **Waterborne Program**
  - **Bicycle and Pedestrian Program**

BACKGROUND

1. Legislative Requirements

California Government Code 65089(b)(5) requires that the CMP contain a seven-year Capital Improvement Program (CIP), developed by the CMA, to maintain or improve the traffic LOS and transit performance measures established in the CMP, and to address impacts on the regional network, as identified through the land use impact analysis program. Capital improvement projects must conform to air quality mitigation measures for transportation-related vehicle emissions, as detailed in the Bay Area Air Quality Management District's 2000 Clean Air Plan and related documents.

2. Legislative Intent and Application to San Francisco

The CMP legislation was formulated around a relatively simple concept: future transportation needs would be estimated through the land use analysis program, curbed to some degree through actions in the trip reduction element, and otherwise addressed through a fund programming mechanism to supply new transportation projects and services. That mechanism is the Capital Improvement Program (CIP), which ensures the steady supply of transportation improvements needed to at the same time accommodate land development and prevent congestion from worsening. The legislation defines the CIP as a seven-year program. This makes it a medium-range programming tool, clearly not intended to replace long-range plans, but rather to provide a vehicle for implementation of improvements consistent with long-range policies.

The CIP is intended to address future problems anticipated through land use impacts analysis, rather than to react to problems already observed. The provision for deficiency plans (see Chapter 9) supports the notion that the CIP is meant to anticipate problems: deficiency plans are allowed only in cases where the CIP could not keep up with the growth of congestion in a roadway facility, and it is no longer feasible (physically or financially) to fix the problem in that facility, so improvements on other facilities are required instead.

The emphasis in CMP legislation is on expeditious delivery of transportation projects where needed. The CIP must ensure that improvements will be on the ground when needed, in order to prevent worsening of congestion. However, because of peculiarities of the funding process, new projects typically get programmed in the outer two years of each seven-year CIP. This makes it difficult for the CIP to immediately address newly identified needs. In order to be effective, the CIP must at the same time function as a transportation project *delivery* mechanism and as a programming framework, including a re-programming feedback loop, to ensure that changes are incorporated promptly, and that the information is always current. This kind of flexibility is essential to deal with San Francisco's complex and dynamic transportation funding program.

The legislation does not provide guidance as to whether the 7-year period alluded to in the context of the CIP is a programming period or a project delivery period. The fact that programming transportation funds through the State Transportation Improvement Program (STIP) also followed a 7-year cycle[1] at the time the CMP legislation was developed gives weight to the interpretation that the CIP's 7-year period is a programming horizon. It is clear, however, that the effectiveness of the CIP (i.e., its impact on system performance) must be evaluated against the anticipated timelines for actual delivery (i.e., completion) of transportation projects and services. For projects programmed in the second half of the 7-year CIP, those delivery timelines will likely extend beyond the 7-year programming period.

[1] The STIP now follows a 5-year cycle.

3. Transportation Investment and System Performance

One of the key purposes of the CMP, as reflected by the legislation, is to establish a link between transportation investment and system performance. In fact, the 9-cent-per-gallon state fuel tax increase became politically viable in 1989 only after it was coupled with a requirement for congestion management programs. This was the Legislature's way to reassure Californians that the new revenues would be spent in ways that would make a tangible difference in people's level of mobility. Specifically, the legislation established the requirement for a 7-year Capital Improvement Program clearly intended to help maintain or improve operating conditions on the transportation system.

"One of the key purposes of the CMP... is to establish a link between transportation investment and system performance."

Furthermore, state law establishes that if the CMA finds a local jurisdiction to be in non-conformance with the CMP, the State Controller must withhold revenues from the 9-cent per gallon gas tax increase (Sections 65089.5 (b)(1) and 65089.2 (c)(1)), and the MTC cannot program federal Surface Transportation Program funds or Congestion Mitigation and Air Quality funds to transportation projects in that jurisdiction. With this requirement, the emphasis on system performance is effectively linked to the power of the purse: while transportation investment can be used to address a number of goals, such as community redevelopment, urban beautification, safety, and the like, the CMP *must* focus on transportation system performance, and the CIP must identify improvements that maintain or improve system performance, or the county risks a finding of non-conformance and potential loss of transportation funding.

The changes to CMP law introduced by AB 1963 in 1994 further emphasized the focus of the CMP on performance by mandating a new performance element, which replaced the transit element. Reaching beyond the roadway-oriented approach of the original CMP language, AB1963 calls for a performance element that addresses a *multimodal* system which is concerned with transit, shared ride, bicycle, pedestrian and other types of trips in addition to trips by single-occupant automobile. (For more details on this topic, please see Chapter 5.) In particular, section 65089(b)(2) explicitly requires that multimodal performance measures developed as part of the performance element be used to inform the decisions about the composition of the CIP.

To be sure, the CIP is not the only factor affecting system performance. Other key factors influencing the performance of San Francisco's multimodal CMP network are: land use decisions, trip reduction programs, and system operations decisions. Land use decisions and trip reduction programs affect the *demand* for transportation: development decisions result in new trips or in changes in trip patterns, and trip reduction programs hopefully result in elimination of some single-occupant automobile trips and in changes in travel behavior which affect the level and patterns of utilization of the transportation system. But the CIP is a key determinant of system performance because it can directly affect the *supply* of transportation infrastructure in the city. Because the CMP network's performance standards are predicated upon the implementation of the projects in the CIP, any proposed changes to the CIP must first be evaluated to estimate their impacts on expected system performance, to ensure that the established performance standards are maintained and that San Francisco remains in conformance with the CMP.

Chapter 5, the multimodal performance element, guides the establishment of multimodal system performance standards and describes procedures for evaluating the performance of system components. This is in addition to the roadway LOS monitoring and standards described in Chapters 3 and 4.

CIP CONTENTS AND CONTEXT

4. CIP Components

In order to satisfy the State legislative requirements described above, the CIP includes the following components:

a) All projects and /or expenditures included in the 1991, 1993, 1995, 1997, and 1999 CMP CIPs, as amended or modified in the 2001 CMP.

b) All transportation projects and/or expenditures programmed for projects in San Francisco in the State Transportation Improvement Program (STIP), in addition to those in (a) above.

c) All transportation projects and/or expenditures programmed for San Francisco projects in the federal Transportation Improvement Program (TIP), in addition to those in (a) above.

d) All projects contained in the 1999 Proposition B Strategic Plan, and in subsequent amendments and updates.

e) All projects in the Transportation Fund for Clean Air (TFCA) program for San Francisco that were programmed by the Authority as part of the 40% discretionary portion of that program.

Items b and c above include projects located in San Francisco, but sponsored by entities not directly within the City's jurisdiction such as BART and Caltrans.

Appendix VIII contains a detailed cost/funding matrix for each project currently in the CIP. Please refer to Section 6.2 for a description of the cost/funding matrices. The schedule showed dates for major project milestones, such as completion of preliminary specifications and estimates (PS&E) and construction. It was intended to be a tool to assist the Authority in tracking project delivery through the CIP. As administrator of the Prop. B revenues, the Authority already has a mechanism in place for tracking Prop. B project delivery (i.e. the Strategic Plan and ongoing project management oversight activities) so those projects were not included in the Active Project Delivery Schedule. Given the new timely use of funds requirements imposed by SB45 for projects programmed in the STIP, a more sophisticated project delivery system is needed. Development and implementation of an appropriate system will be a primary work plan task during early 2000. Further discussion on project delivery mechanisms is found in Section 8: Project Delivery.

For a detailed discussion of the Authority's process for review and approval of CIP changes, please refer to Section 7: CIP Review and Amendment Procedures.

5. Relationship to Other Plans and Programming Documents

5.1. Relationship to the Countywide Long-Range Transportation Plan

The CIP is the most significant implementation tool of the CMP. Pursuant to State law, in order to be included in the Regional Transportation Improvement Program, and therefore be eligible to receive state and federal funds, a project must first be included in the CIP. In addition, the CIP is a 7-year document, designed to ensure the delivery of transportation projects needed to maintain system performance. The CIP is intended to serve as a short or medium-range implementation vehicle for a longer-range list of priority projects, such as would be provided by a countywide transportation plan.

Development of a long-range (20-year) Countywide Transportation Plan for San Francisco is currently underway, and is expected to be completed by July 2002. The City's General Plan includes a Transportation Element, updated in July 1995, which contains 40 general objectives and 200 associated policies. The long-range plan will look at the potential impacts of those policies, address trade-offs between them, establish priorities, and develop a specific list of investments to implement the prioritized policies. Under state law, the Authority, as CMA, is responsible for the preparation of the long-range countywide transportation plan. The plan's action element will include a list of specific investment priorities (i.e., transportation projects and services). By following that list, the CIP will then become the main implementation tool for the countywide transportation plan.

The Authority intends to develop a new sales tax expenditure plan as part of the long-range countywide transportation plan. The ability to design a new sales tax expenditure plan as part of the development of the long-range transportation plan offers a rare opportunity for a high degree of coordination between planning and programming. In other words, it helps to ensure that priorities and timelines for transportation investments identified in the long-range plan can, in fact, be implemented as envisioned. The long-range plan also provides a citywide and multimodal context for system performance issues, which can be considered in the design of the expenditure plan. Until a countywide plan is developed, the Authority will continue to develop the CIP project priorities based on its analysis of need, system performance, and programming and funding strategy.

This section will be expanded upon as necessary, upon completion of the long-range transportation plan.

5.2. Relationship to the Proposition B Strategic Plan

Proposition B is the half-cent local sales tax for transportation, approved by San Francisco voters in 1989. Prop. B, as presented to the voters, includes an Expenditure Plan detailing specific projects that are eligible for the new sales tax revenues. The Proposition will be in place for 20 years from the date of inception. It is expected to generate close to $1 billion for transportation projects in San Francisco. The significance of these revenues is that they are used, in part, to provide the matching funds required to attract state and federal dollars. Depending on the funding program, the proportion may be as low as 11.5% local to 88.5% federal. This is the "leveraging" effect of the Prop. B dollars. In addition, some Prop. B revenues are used to pay entirely for certain projects that are of local interest but do not compete well for state or federal funding.

The Prop. B Expenditure Plan did not earmark all transportation sales tax revenues to specific projects. Rather, it established four categories of investment and attached mandatory percentage shares of total Prop B revenues, as shown below:

Transit	60%
Streets & Traffic Safety	30%
Paratransit	8%
Transportation Systems Management (TSM)	2%
	100%

In order to achieve these goals while maximizing San Francisco's ability to leverage state and federal dollars, the Authority developed the first Prop. B Strategic Plan in 1993, and updated it in 1995 and 1997. The Strategic Plan established a requirement for 5-year investment plans from City departments requesting Prop. B funding for their projects. This requirement is intended to provide the Authority with an accurate picture of anticipated transportation funding needs, which are then reconciled with expected revenues to arrive at the most favorable financial strategy for San Francisco's transportation program.

While the 9-year Prop. B Strategic Plan is designed to identify the best possible funding and financing strategy for San Francisco's transportation program, and while the departments' 5-year plans are designed to provide a picture of investment need in each transportation area (transit, roads, etc.), the CIP, because of its focus on system performance, serves as a framework for analysis of trade offs among proposed transportation projects which receive Proposition B and other funds. Beyond the analysis of funding feasibility or financial strategy, *the CIP ensures that the proposed investments will result in tangible improvements in mobility* for people using San Francisco's multimodal transportation system. The CMP's overriding emphasis on mobility improvement may from time to time trigger adjustments to the Prop. B Strategic Plan.

5.3. Relationship to the RTP

The Authority, as CMA, provides input to the Metropolitan Transportation Commission (MTC) for the periodic updates of the Regional Transportation Plan (RTP). State law provides that where countywide transportation plans have been developed, they will be used by MTC as a basis for RTP assumptions for that county. The countywide transportation plan for San Francisco, currently underway, will be consistent with MTC's guidelines for countywide transportation plans in order to facilitate its incorporation in the RTP. In the absence of a long-range countywide plan, the CIP, complemented by the Proposition B Strategic Plan, serves as a main indicator of transportation investment priority trends in San Francisco.

5.4. Relationship to the RTIP

Pursuant to state law, the CIP list of projects is used by MTC in compiling the biennial

Regional Transportation Improvement Program (RTIP), which in turn feeds into the State Transportation Improvement Program (STIP) and the Federal Transportation Improvement Program (TIP). Under state law, projects proposed for funding through specific federal sources programmed through the STIP/TIP must first be included in the CMP's Capital Improvement Program.

5.5. Relationship to the San Francisco General Plan

The San Francisco City Charter assigns responsibility to the Planning Department for consistency review of capital improvements with the General Plan. This consistency review function is incorporated into the Authority's programming process as described in Section 6 below. The Planning Department, in consultation with the Authority, will develop specific criteria for the review of the Draft CIP list's consistency with the General Plan. The Authority will work with the Planning Department to establish a timeline for this task.

5.6. Relationship to City Department Activities

The changes in the programming introduced by the 1995 CMP, as explained in this chapter, do not substantially alter programming-related activities currently performed by City departments. The goal of the process is, in fact, to streamline the programming process so that complete and timely information is available to the Authority Board, to provide a well-defined context that facilitates strategic programming policy decisions.

It is important to note, for example, that individual City departments will continue to develop their own capital investment plans. The Authority's intent is not to suggest changes to the priorities within those plans, but rather to steer the overall programming strategy and analysis of trade-offs.

The Authority review process, as explained in the following sections, provides the required structure to analyze programming and performance data that will inform those Authority Board decisions. It is important to note that the process is intended to function using information already developed by City departments, and that except as requested by the Authority Board, no new information will be required.

The most significant value added by the Authority's review process is in providing an overall context for transportation programming strategy and system performance, to facilitate Authority Board decisions.

"The most significant value added by the Authority's review process is in providing an overall context for transportation programming strategy and system performance, to facilitate Authority Board decisions."

Exhibit 8-A provides a summary of key roles and responsibilities of the Authority and City Departments in the transportation programming process.

Exhibit 8-A

Transportation Programming Roles and Responsibilities

A. City Departments

1. Prepare plans, prioritize capital improvement programs and financial plans on an annual basis
2. Use financial constraints and strategies imposed by external agencies plus those agreed to by the Authority and Departments for various funding sources
3. Revise financial plans at regular intervals, to reflect changes in project scope, budget or schedule, and changes in funding projections
4. Process CIP Amendments through the Authority, and obtain Authority Board approval or administrative review before submittal of new information to outside agencies
5. Check eligible project list consistency with the San Francisco General Plan before adoption by Authority Board. (Performed by the Planning Department)
6. Make prioritization recommendations at the time of eligible project consistency review.
7. Planning Department assessment of priorities based on the General Plan.

B. Authority

1. Develop, adopt and update the CMP and its CIP
2. Process CIP Amendments according to the established procedures
3. Input into the MTC, and state and federal agencies process for the preparation and updates of the Regional, State and Federal Transportation Improvement Programs (RTIP, STIP and TIP).
4. Provide Prop. B revenue estimates and advise on financial strategies
5. Develop Strategic Plan updates to respond to revisions in Department capital and financial plans and to reflect CIP Amendment decisions
6. Notify outside programming agencies of decisions on CIP Amendments
7. Program the local (40%) portion of the TFCA funds

5.7 Relationship to Short Range Transit Plans

In addition to Muni, five regional transit operators serve San Francisco: BART, AC Transit, SamTrans, Golden Gate Transit, and Caltrain. The Short Range Transit Plans (SRTPs) developed by these operators are the basis for their programming requests to the Authority for inclusion in the San Francisco CIP.

The Authority uses the SRTPs as an input into its programming process, to ensure better coordination of San Francisco programming decisions with regional priorities.

PROCESS AND PROCEDURES

6. The Authority's Capital Priorities Programming Process

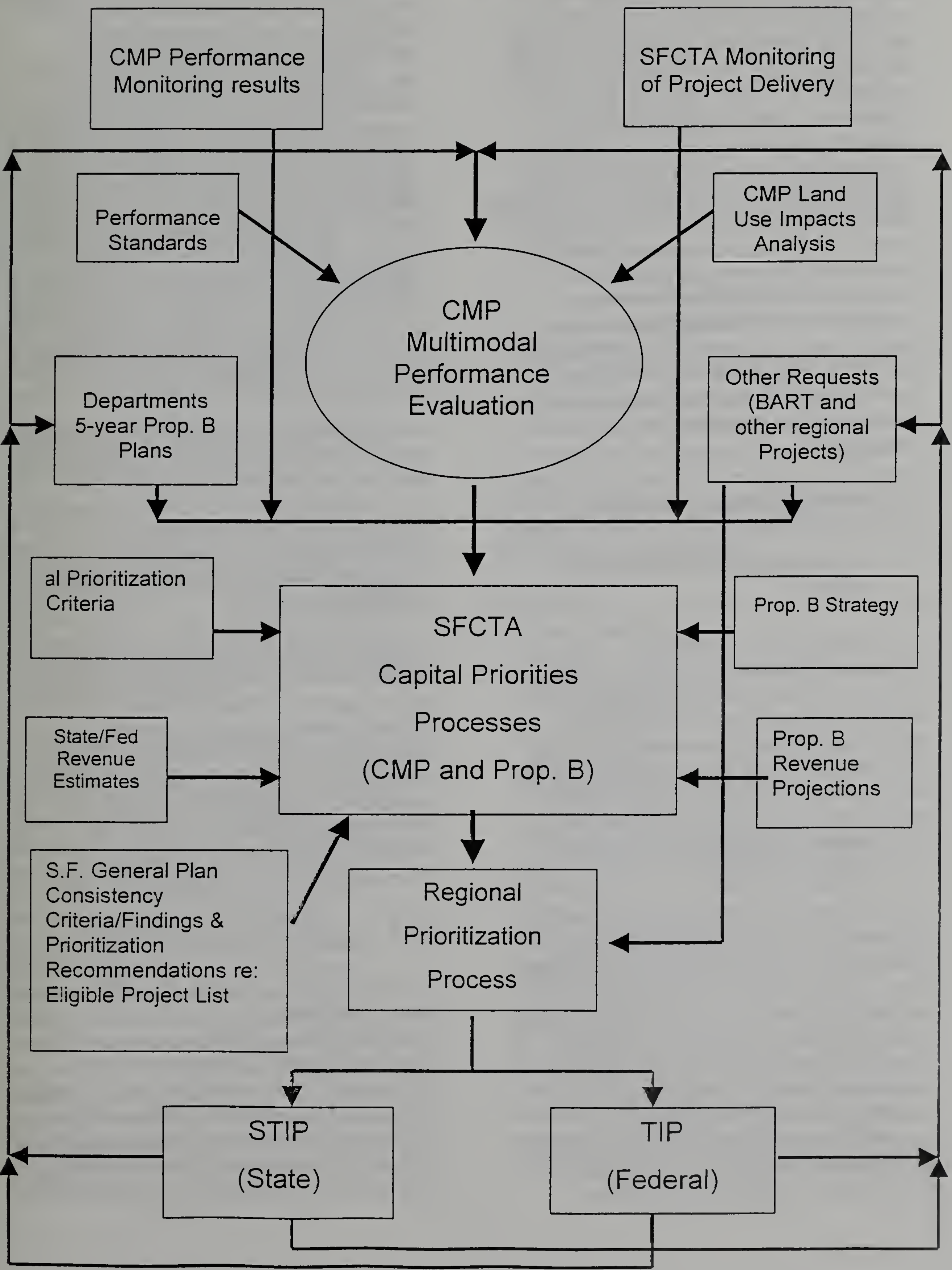
Figure 8-1 describes the Authority's Capital Priorities Programming Process. As a result of the Authority's combined role as Prop. B administrator and CMA, this process, though focused on funds that are required by state law to be programmed through the CMP (i.e., state and federal dollars), also incorporates Prop. B strategy.

The process starts with an evaluation of transportation demand or need, as evidenced by two general categories of information: programming requests from City Departments and other transportation agencies, and data about expected travel patterns and monitoring of system performance. At the center of this evaluation are the CMPs multimodal system performance standards, which provide guidance on what constitutes an acceptable level of mobility, for example: should the level of service on the roadway network be set at “E” (congested) or at “B” (almost free-flow), or should transit service headways be 20 minutes or 5 minutes.

The multimodal performance standards are a *policy* decision, arrived at by weighing what kinds and amounts of transportation we would *like* against how much of it we can *afford*, and against other competing policy objectives (such as air quality or other environmental or community impacts). This requires coordination with General Plan goals and objectives and it necessitates periodic consultation with Muni and other transit providers serving San Francisco, to ensure that the established standards are realistic and can be met. The Authority's Capital Priorities process takes into account those standards, as well as current information from the Authority's own monitoring of project delivery (to further understand potential impacts on system performance), and draws up a list of transportation investment priorities that considers Prop. B financing strategy, regional prioritization criteria (to ensure that San Francisco projects will compete well for state and federal funds), and adjusts the list to revenue projections for Prop. B and State and federal funding sources. The result is the recommended CIP list, which is adopted by the Authority Board and submitted to MTC.

The CIP list then enters the regional prioritization process, where San Francisco projects compete with projects from the other eight Bay Area counties for state and federal funds. The result of this process is a final regional priorities list, which is adopted as part of the Regional Transportation Improvement Program (RTIP), which, in turn, becomes the basis for the State Transportation Improvement Program (STIP) and for the federal Transportation Improvement Program (TIP) for California. San Francisco projects included in the STIP and TIP will then be ready to receive state and federal funds. It must be noted that the programming of projects considered regional, such as certain BART projects, can be initiated at the regional level (MTC).

Figure 8-1
Authority Programming Process



At this point, there is an important feedback loop that takes place as part of the Authority's programming process. Programming documents and performance standards will need to be adjusted to reflect the projects that did *not* receive funding. For example, if a project in Muni's Short Range Transit Plan (SRTP) does not receive federal funds, it may become infeasible, or it may require a change in the Authority's Strategic Plan to devote more Prop. B funds to close the gap left by the lack of federal funds, and it may require re-prioritization or rescheduling of other Muni projects to ensure that system performance is maintained. On a broader scale, it may require revisiting General Plan policies as well. This feedback loop is therefore an essential step to reconcile transportation investment and transportation system performance.

6.1. CIP Development - Schedule

6.1.1. Programming of CMP-Based Funds

For funding sources subject to programming through the CMP by state law, the CIP development process follows the biennial CMP cycle. Pursuant to regional agreements, development of the CIP is ideally tied to the development of the STIP and the TIP. It typically starts with a call for projects, issued by the Authority, as CMA, around September/October of the first year of the cycle.

Project sponsors submit applications in the regionally developed standard format for state Regional Improvement Program (RIP) Funds and federal STP and CMAQ funds. Project sponsors are responsible for scoring their proposed projects, when applicable, according to the rules detailed in the application packet. Project sponsors typically have about two months to complete this step. The Authority screens all projects for eligibility, checks project scores (when applicable), reconciles funding assumptions with the Prop. B Strategic Plan, and develops a draft eligible project list for San Francisco. At this point the list is submitted to the Planning Department for a consistency check with the General Plan. The Authority has approximately one month to complete its review (including General Plan consistency input from the Planning Department and evaluation of system performance), adopt the prioritized draft CIP list, and submit it to MTC for the regional competitive process. After clarification is sought from project sponsors on any project details affecting eligibility, scores or ranking, a draft regional list is developed in June and adopted by MTC. The state and federal approval of the TIP happens in September/October.

The final list for San Francisco is adopted by the Authority Board, and it becomes the final CIP list for the biennial CMP cycle. CMP updates, addressing not just the CIP but the entire CMP document, as necessary, are also adopted in October/November of the second year of each biennial cycle.

It need be noted that the above process is subject to change depending upon various factors external to the Authority. For instance, delays in approval of the federal transportation bill (the successor to TEA21) or release of the State Fund Estimate can impact the programming schedule. Interested parties should contact the Authority for the latest information on programming processes and schedules.

6.1.2. Programming of Other Funds

The programming process described above does not include all funding sources available for transportation projects in San Francisco. Below is a description of the programming process for the main sources not covered in Section 6. Because of the implications for the overall transportation programming strategy for San Francisco, programming applications for these sources will require review and concurrence consistent with the procedures described in section 7 below.

a. **FTA Funds:** These are funds that are specifically designated for transit projects as set forth in the Federal Transit Act Amendments of 1991 (the "Act"). Sections 3 (Fixed Guideway – now called 5309) and 9 (now called 5307) provide for formula-based block grant programs based on population, population density, and level of transit service. 5309 funds are programmed for capital projects only, while 5307 funds are available for both capital and operating assistance. 5309 also contains discretionary capital grant programs for bus equipment and facilities, and for new rail starts. Required matching funds for these programs come from various state, regional and local sources (most importantly Proposition B).

In the Bay Area, FTA funding is programmed through a process established by the Metropolitan Transportation Commission. MTC Resolution 2553 spells out the rules by which transit operators in the region make programming applications which are then ranked in a regional master list, by funding source.

b. **Proposition B Funds:** These are the half-cent sales tax revenues collected for specific transportation expenditures in San Francisco. The Authority administers this process through the development of a Strategic Plan for the commitment of Prop B funds. The Strategic Plan contains a nine-year projection of the likely commitment of sales tax funds, and it includes projections of the expected regional, state, and federal transportation funds, which are used to estimate the commitment of Prop. B (local) matching share. The Strategic Plan is updated biennially, and it may need to be amended if significant discrepancies appear between what was originally programmed in the Plan, and the actual level of Prop. B project funding requested at any given time. The Plan is based on information contained in departmental transportation capital plans submitted to the Authority on an annual basis, as reflected in individual cost/funding matrices prepared for each project as part of the Strategic Plan update. These capital plans provide information not only about the anticipated demand for Prop. B funds, but also about preliminary programming of other local funds. The third update of the Strategic Plan was adopted by the Authority in July 2000.

6.2 Documentation of Project Programming Status: Cost/Funding Matrices

For every project included in the CIP according to the criteria discussed in Section 4 above, there will be a separate cost/funding matrix including project name, project identification number, a detail of specific project costs covering the following specific cost categories:

- Planning
- Environmental
- Design
- ROW Acquisition
- Procurement
- Construction
- Contingency
- Incremental O&M Costs

and a detail of funds programmed to that project by year of programming and by funding source. Cost/funding matrices for all projects in the CIP are included in Appendix VIII. Any changes to current programming status information affecting one or more projects will trigger the development of a new cost/funding matrix for the affected projects. All cost/funding matrices will be stored in the Authority's computerized Programming Information Management System (PIMS). The data contained in the PIMS will be updated to reflect programming changes every time they are approved through the CIP Amendment process described in Section 7 below, as well as after adoption by the Authority board of periodic updates of the Proposition B Strategic Plan. Information contained in the PIMS then serves as the basis for the Authority's monitoring of projects to facilitate compliance.

7. CIP Review and Amendment Procedures

Changes to the CIP project list, that need to be processed outside the biennial CMP updates, are subject to administrative review and in some cases must be approved by the Authority Board through CIP Amendments.

7.1. Applicability

The previous sections describe the central role of the CMP in establishing standards and measuring or otherwise assessing the performance of the multimodal transportation system, and the role of the CIP in helping to maintain that level of performance. Any proposed changes to projects included in the CIP must therefore first be assessed by the Authority, for potential effects on the performance of the multimodal transportation system. This requirement applies to changes in the scope, schedule, or programming package for all CIP components, as described in Section 4:*CIP Components*. Because project viability can be affected by changes in any component of its funding package, the requirement for Authority review applies to all funding components of CIP projects, whether they are directly programmed by the Authority or not.

The Authority's review process applies not just to proposed programming changes to the CIP, but also to initial programming applications for funds not directly administered by the Authority, but which are part of the CIP (see Section 4). Note that this requirement applies to the programming of funds, not to applications for receipt of already programmed funds (also known as *grant applications*). This is true unless the grant application introduces changes in programming.

7.2. Kinds of Amendments

There are two kinds of CIP Amendments: policy level and administrative level.

7.2.1. Policy-Level CIP Amendments

These apply to changes that are deemed by the Authority to be significant enough that they have the potential to affect the performance of the multimodal transportation system.

"[Policy-level CIP amendments]... apply to changes that are deemed by the Authority to be significant enough that they have the potential to affect the performance of the multimodal transportation system."

Policy-level CIP Amendments are required for all programming or schedule changes to CIP projects where the change will affect the scope of the project, or the year of delivery (completion) of the project, or the amount or availability of operating funds for that project, or the year of programming of Authority-programmed funds for that project, or the fund source designation or any other aspect of the funding packet requiring action by the Metropolitan Transportation Commission (MTC) or the California Transportation Commission. See exceptions to this under 7.2.2 below.

Policy level CIP Amendments require approval by the Authority Board prior to processing of the change by the implementing department. The requirement for policy level CIP Amendments will apply to all pertinent actions (as noted above) for at least the following funding sources: STP, CMAQ, county share TEA (i.e., programmed by the Authority under TEA21), FCR, RIP, CMAQ Match (state STIP funds), State TSM, FTA 5309 (formerly Section 3) and 5307 (formerly Section 9), State Rail Bonds (Props. 108 and 116), and Emergency Relief Funds.

7.2.2. Administrative-Level CIP Amendments

These apply mostly to programming changes that can alter the overall transportation programming strategy for San Francisco, even though their individual effects on system performance may only be very marginal. Such programming changes will trigger the need for administrative level CIP review even if they are not tied to a specific project listed in the CIP, as long as they affect San Francisco's share of a transportation funding source listed in the CIP.

"[Administrative-level CIP amendments]... apply mostly to programming changes which can alter the overall transportation programming strategy for San Francisco, even though their individual effects on system performance may only be very marginal."

Administrative level CIP Amendments will only require notification to, and concurrent review by the Authority's Executive Director. The purpose of this requirement is to ensure that the Authority has the required information to evaluate programming strategy and the performance of CIP projects in the context of the entire universe of programming and project delivery decisions in San Francisco. Administrative level CIP Amendments may involve any of the following funding sources:

Federal: TEA (programmed by MTC), TLC, TSCP

State: ITIP, TCI, and SHOPP

Regional: Measure 1 and AB 664, STA, TDA, TFCA (60%)

Local: SFMRIC, TIDF, TFCA (40%)

In addition, proposed changes to Prop. B programming will automatically trigger administrative-level review and, at the Executive Director's discretion, may require policy level CIP Amendments.

7.2.3. Sources Not Covered By CIP Amendments

Certain funding sources, such as HES, are programmed through state or regional processes. Typically, the funds become available to City project sponsors through a separate application procedure. In some cases, the funds are allocated on a first-come, first-served basis, so that the ability of City departments to act quickly is crucial. For funding sources in this category (listed below), which are not subject to a local programming action, there is still a need to include the data in the Authority's database, but no CIP amendments are required. Project sponsors are required to submit to the Authority a copy of the grant application request at the same time as the application is made to the funding agency. Project sponsors are also required to submit to the Authority a copy of the grant award letter, as soon as it is received.

Funds subject to this requirement include at least the following:

State: Gas Tax, HES, HBRR, SLPP, and TEE.

7.2.4 Exceptions to Policy-Level Amendments

Regardless of the funding source or other programming aspects affected, the Executive Director may rule that a requested CIP Amendment is administrative if the proposed changes, involving one or more projects and one or more funding sources requires programming actions that can be authorized at the staff level at MTC or CTC, or at the Regional Office level for Federal Agencies, such as administrative TIP amendments, or if it results in the following:

- no net change in the total amount of funds allocated to each of the projects involved; and
- no change to the total amount of dollars of each funding source, all affected projects combined; and
- no increase in Proposition B match required, all affected projects combined; and
- when a programming year change is involved, it will have no effect on the delivery schedule for the project because that schedule is determined by documented external factors.

7.3. Requirements for Submittal of CIP Amendment Requests

7.3.1. Application Contents - Format

In order to avoid additional reporting burdens on City departments, there is no specific form or format for submittals to the Authority. However, project sponsors wishing to make application to regional, state or federal programming agencies for changes affecting current CIP programming, or sponsors who are planning to submit initial applications for new programming to regional, state, or federal agencies, must submit two (2) copies of those preliminary applications to the Authority, for review prior to filing their applications with those programming agencies. If this is not available at the time, a short note explaining the reasoning behind the change, and accounting for the full amount of the funds being programmed should be submitted to the Authority. In addition, a marked-up copy of the cost/funding matrix for each project for which programming actions are being proposed must be included with the application, editing all cells that are affected by the proposed programming action.

It is not the Authority's intent to question the priorities of City departments, or to suggest different projects (particularly regarding applications for new programming), but rather to evaluate their programming requests for impacts on multimodal system performance and for impacts on Proposition B and overall CIP strategy.

7.4. The Authority's Review Process

The sections below detail the Authority's process, which includes an initial administrative level review, to determine the need for further application information as well as to suggest the appropriate level of CMP Amendment required. This is followed by detailed, concurrent reviews for programming and performance implications. The process also calls for discussions with project sponsors to resolve any issues identified by the Authority's review, and establishes basic procedures to ensure disposition of the requests for review within a reasonable period of time.

7.4.1. Application In-take Review

Upon receipt of an application for programming changes, the Authority will perform an initial staff-level review. Within ten (10) working days after receipt of the application, the Authority will communicate in writing to the applicant the need for any additional information, necessary in order to further process the application.

Within (10) working days after receipt of all information necessary to complete the application, the Authority will issue a *letter* *of initial findings*, notifying the applicant in writing about the level of CIP Amendment required.

If the Authority finds that a policy-level CIP Amendment will be required (involving Authority Board action), the communication will include:

- a schedule for Authority Board approval;
- a preliminary list of unresolved conformance or consistency issues identified in connection with the application; and
- a proposed course of action for resolution of these issues, including, at least, consultation and joint efforts with the applicant.

7.4.2. Detailed Review

Unless otherwise specified in the proposed schedule for resolution of issues, within ten (10) working days after issuance of the letter of initial findings, the Authority will complete a detailed review of the application. The detailed review will include two components: a programming review, and a performance review. To expedite the process, both reviews will be carried out concurrently at the Authority. The conclusions from the detailed review will form the basis for an administrative finding of concurrence or for a recommendation to the Authority Board, as appropriate.

A. Programming Review

The programming review will evaluate issues of Proposition B Strategic Plan consistency and CMP CIP conformance.

Programming Review Criteria
The evaluation of impacts of proposed programming changes on the CIP (including the Prop. B program) is structured to provide information about three key strategic programming and fiscal policy factors for the Authority:

a) **Cost of Money.** The analysis will address questions such as does the proposed change limit availability of funding by Prop. B category or by State or federal funding source? Does it require or bring the Authority closer to the need to bond in order to deliver the Prop. B program? Does it otherwise affect other CIP funding sources so as to increase the cost of money?

b) **Leveraging Capacity.** The analysis will address questions such as: Does the proposed programming change improve or worsen the Authority's prospective ability to capture state and federal funds for San Francisco projects? Does it increase the local (Prop. B or other) match?

c) **Other Programming Policy Consistency.** The analysis will address questions such as does the proposed programming change result in a skew of the funding category targets established in the Prop. B Strategic Plan? Does it substantially alter the programming priorities established in the Strategic Plan? Does it substantially alter the programming priorities established in the latest CMP CIP?

In addition the Planning Department will be asked to provide a consistency review on the basis of General Plan criteria. This review will be incorporated into the Authority's process subject to the Department's ability to meet strict turnaround timelines specified in 7.4.1. and 7.4.2. above, to ensure timely response to other City departments.

B. Performance Review

The performance review will evaluate impacts on the performance of San Francisco's multimodal transportation system.

Performance Review Criteria
The evaluation of potential impacts of proposed programming changes on multimodal system performance will be performed according to the criteria described below. These analyses are intended to provide order-of-magnitude findings about future system performance, particularly cumulative impacts on operating conditions at the facility, corridor, or systemwide level. The process is not focused on prediction of minor changes in individual CMP network segments. As required by state law, the Authority's Transportation Analysis Database (TAD) will support these analyses. The TAD will be improved incrementally over time and complemented with information from city departments and other available sources. For a more detailed discussion of multimodal system performance, please refer to Chapter 5.

An evaluation form will be prepared for each CIP Amendment request, addressing all applicable questions from the sections below:

a) **Effects of Schedule Changes on Performance.** The analysis will address questions such as does the proposed programming change involve or result in a delay in the delivery (completion) of any CIP projects? Are there significant anticipated impacts on system performance because of completion delays?

b) **Effects of Scope Changes on Performance.** The analysis will address questions such as does the proposed programming change result in a downsizing of CIP projects?

c) **Potential Deficiencies.** The analysis will address questions such as does the proposed programming change create the potential for a deficiency on the CMP network? Does it adversely affect the City's ability to implement already adopted deficiency plans? Does it adversely affect the likely effectiveness or delivery timelines for an already adopted deficiency plan?

d) **Multimodal Balance.** The analysis will address questions such as does the proposed programming change affect the multimodal balance of the CIP? Does it significantly degrade performance conditions for one mode vis-à-vis other modes? Is it likely to significantly affect certain categories of travelers vs. others (e.g., will it adversely affect off-peak transit riders vs. drivers?, or local vs. through trips?)

e) **Subarea Impacts.** The analysis will address questions such as is the proposed programming change likely to result in disproportionate adverse impacts to system performance for one subarea of the City vs. the others?

7.4.3. Disposition of Amendment Requests

For Administrative-Level Amendments

If the outstanding issues identified during the review process are resolved, the Authority will issue a *letter of concurrence* with the proposed programming change. If there is no resolution within 30 days of the issuance of the *letter of initial findings*, the request will be scheduled for Authority Board consideration at the next meeting.

For Policy-Level Amendments

If there are no outstanding issues identified during the review process, the item will be scheduled for Authority Board action at the next meeting, with a recommendation for approval. If the review process identifies issues, and they are not resolved within the time frame specified in the Authority's *letter of initial findings*, the Authority will establish a schedule for final resolution of these issues, and invite the pertinent programming agencies to facilitate the process. The findings and recommendations from this process will be agendized for Authority Board action on a schedule determined by the Executive Director.

7.5. Adjustments to Prop. B Strategic Plan

As part of the evaluation process for all CIP Amendments, the Authority will explicitly consider and recommend adjustments to the Prop. B Strategic Plan and to the TFCA program, to maintain consistency. Such adjustments will be scheduled for Authority Board action concurrently with the corresponding CIP Amendments.

7.6. Notification of Programming Agencies

The Authority will notify the pertinent regional, state, or federal agencies, in writing, within 5 working days of Authority Board action on policy level CIP Amendments, and/or staff-level approval of Administrative-Level CIP Amendments.

8. Project Delivery

One of the key purposes of the CMP is to establish the link between transportation investment and system performance. In the CMP, this is primarily achieved through the CIP (see Section 3: Transportation Investment and System Performance). Programming projects in the CIP is only half of the picture. In order to be effective, the CIP must also function as a transportation project *delivery* mechanism.

"One of the key purposes of the CMP is to establish the link between transportation investment and system performance."

Failure to deliver projects or delays in implementation can affect system performance. Further, depending upon the fund source, delay in obligating funds or implementing a project can result in loss of funds to the project and/or permanent lost to San Francisco. In the long run, poor project delivery rates can influence state and federal authorization levels for transportation funding, leading to fewer resources to dedicate to maintaining and improving the transportation system.

The Authority has mechanisms in place for tracking Prop. B project delivery (i.e., the Strategic Plan and ongoing project management oversight activities). As CMA, the Authority continues to work with the MTC to monitor project delivery rates for projects programmed in the RTIP. In FY99/00 we will develop a more formalized process for tracking project delivery in order to respond to the more stringent timely use of funds requirements for STIP funds established by SB45 and to state and federal concerns about poor statewide delivery rates for federally funded projects, as well as to allow us to be more pro-active in identifying and helping to resolve project delivery issues. These new procedures will be reviewed by the Authority's Technical Working Group.

9. Program Overview

Appendix VIII includes cost/funding matrices for CIP improvements programmed through the 2001 San Francisco CMP. Information for these projects is consistent with data reflected in the adopted 1999 Update of the Proposition B Strategic Plan, the 2002 State Transportation Improvement Program (STIP) project list for San Francisco, and in the region's federal Transportation Improvement Program. The matrices will be modified as necessary to reflect the final 2002 STIP, expected to be adopted by the California Transportation Commission by April 2002, any changes made in the 2001 update of the Prop B. Strategic Plan and MTC's Regional Transit Expansion Agreement (RTEP), which is currently being developed. Keeping the CIP up to date is an ongoing process, but there will be a concentrated effort in early 2002 to ensure that it is as complete and as accurate as possible. This will provide useful information for the development of the Countywide Transportation Plan as well as input necessary for project delivery tracking purposes.

The CIP includes transit, bicycle, pedestrian, waterborne transportation and roadway improvements funded with a variety of local, regional, state and federal transportation sources. San Francisco's program is truly multimodal, with the majority of funds going to transit, pedestrian and bicycle projects.

Since the inception of the Transportation Funds for Clean Air (TFCA) program in 1992, the Authority has programmed a total of $6,520,000 to eligible San Francisco projects. These funds are devoted to projects that improve air quality. Highlights of the TFCA program include significant commitments to clean air vehicles, shuttles to high employment centers, various bicycle projects, and two compressed natural gas (CNG) fueling facilities.

9.1. Transit Program

Many of the projects included in the Capital Improvement Program of the 2001 CMP are large-scale multi-year transit projects that were already reflected in previous CMPs, amounting to more than $1.4 billion in funds from a variety of sources. The program addresses maintenance and rehabilitation as well as construction of new lines and facilities. The CIP includes Muni projects, as well as BART, Golden Gate Transit, JPB (Caltrain) and other regional transit projects that benefit San Francisco.

Muni Projects

Among the most significant projects are:

- replacement of the entire (136-vehicle) Light Rail Vehicle (fleet) which provides service in the Muni+ Metro system (subway and surface);
- replacement of the trolley bus and diesel bus fleets;
- improvements to key Metro stations to comply with the accessibility requirements of the Americans with Disabilities Act (ADA);
- extensive streetcar track replacement.
- installation of signal traffic signal preemption devices along diesel coach and trolley bus routes;
- replacement of trolley bus overhead wires;
- purchase of historic streetcars for F-line service;
- construction of the new Islais Creek bus maintenance facility;
- construction of the 3rd Street Light Rail Line and Metro East maintenance facility; and
- initiation of conceptual engineering for the Central Subway project.

Funding for this capital program involves many sources, most importantly Federal funds (about 38%), State funds (about 19%) and local transportation sales tax (about 27%). The remainder of needed funds is programmed from local and regional sources, such as bridge tolls, transit impact development fees, and the regional allocations of TDA and STA funds. The CIP also contains several Caltrain commuter rail projects, with the Peninsula Joint Powers Board (JPB) as lead agency, including track rehabilitation, locomotive rebuild, railcar rehabilitation, centralized train control system, final design for electrification, and completion of the EIR for the downtown extension to a reconstructed transbay terminal.

Regional Transit Operator Projects

Note: This section will be updated in early 2002 as part of the Countywide Transportation Plan. Due to staffing constraints, we are unable to include a complete description of regional transit projects at this time.

Recently programmed regional transit projects include 2002 STIP (i.e., RIP) funds for a new lay berth and rehabilitation of San Francisco Ferry Terminal facilities for Golden Gate Transit, rapid rail improvements and electrification for Caltrain, and station rehabilitation and accessibility improvements for BART (e.g., replacement of platform edge tiles). Moreover, to fulfill local matching requirements for a future Transportation for Livable Communities (TLC) grant from MTC, the Authority has reserved funds for BART's planned improvements to the northeast plaza above its 16th Street Mission Station.

While most of our regional transit projects involve maintenance and rehabilitation or system operations improvements intended to enhance the safety and efficiency of the existing transit system, there have been some expansion projects (e.g. new or extended service) as well. For instance, a portion of San Francisco's 2000 RIP funds was programmed to Caltrain for completion of the environmental work on the downtown extension. The Authority is also actively involved in discussions with MTC, other CMAs, and transit operators regarding priorities for the next round of major transit expansion projects. The end product of these discussions, dubbed the Regional Transit Expansion Agreement (RTEP), will be incorporated into the 2001 RTP. In particular, as CMA for San Francisco, the Authority is advocating for inclusion of the Caltrain Extension to a reconstructed transbay terminal, as well as funding for Muni's Central Subway.

9.2. Roadway Program

All roadway projects included in the 2001 CMP involve rehabilitation, replacement, maintenance, and/or efficiency (including safety) improvements for existing facilities. Significant projects include the Traffic Calming Program, street resurfacing, roadway widening and pedestrian and bicycle improvements on César Chávez Street, traffic operations improvements on Doyle Drive and city arterials leading to it, safety improvements on US 101 at the César Chávez northbound off-ramp, implementation of phase 1 of the Integrated Traffic Management System for San Francisco, and construction of the Illinois Street Intermodal Bridge.

The Traffic Calming Program began in response to neighborhood concern about traffic speed and commuters "cutting through" their streets. The program seeks to reduce traffic impacts and increase safety for pedestrians and other street users through the redesign of streets and sidewalks. A Technical Working Group and a Community Working Group developed guidelines for the program. A number of projects have been proposed to serve as program examples, such as a Bernal Heights Pilot Project, the Broadway Streetscape Plan, and a speed humps/speed tables test currently in development. 2002 STIP funding has been proposed for traffic calming and crosswalk improvements on Phelan Avenue near City College and for a traffic circle at Addison and Digby Streets.

By widening lanes and easing the curvature of freeway ramps, the César Chávez project provides improved vehicular (particularly truck) accessibility between the India Basin Industrial Park, the Hunter's Point Naval Shipyard area and both freeways (US Route 101 and I-280). The project will obviate the need for construction of a new freeway interchange at Islais Creek, which would have created major impacts on the surrounding land uses, it will relieve truck traffic through the Bayview area, particularly on Third Street, and it will provide for needed pedestrian and bicycle improvements to the César Chávez Street Circle (at US 101). This project is currently under construction.

The first phase of the Integrated Traffic Management System (ITMS) project will involve construction of a Traffic Management Control Center and installation of Traffic Operating System (TOS) devices primarily in the downtown area. The system will improve traffic flow and dissemination of related information to city departments, transportation agencies, and the public. Construction of the control center is well underway, and funding for ITMS deployment on Oak and Fell Streets is pending approval in the 2002 STIP.

The Illinois Street Intermodal Bridge will cross Islais Creek, connecting the two existing segments of Illinois Street. The bridge will allow for more direct truck access to and between the Port's marine container facilities located to the north and south of Islais Creek. The bridge will also provide a needed alternate route for trucks that currently use Third Street, since the construction of the Third Street light rail line will reduce vehicle capacity and increase congestion on Third Street. The bridge will also include tracks to allow more direct rail access between the Port's container facilities.

Finally, the environmental and preliminary design work for the replacement of Doyle Drive, the southern approach to the Golden Gate Bridge, is well underway. This work is funded by a $7.2 million federal grant (ISTEA Section 204), and is being led by the Authority. Replacement of Doyle Drive and the seismic retrofit of the Golden Gate Bridge (with the Golden Gate Bridge Highway and Transportation District as the lead agency) are major capital projects necessary to accommodate travel between San Francisco and the peninsula and the North Bay. The Authority is actively seeking funding for the final design of Doyle Drive, which may be secured through the 2002 STIP.

9.3. Waterborne Program

This section of the program focuses on improvements to the Downtown Ferry Terminal complex, which are intended to allow for increased frequency and reliability of ferry service to the East and South Bay. These improvements are part of the master plan for the Downtown Ferry Terminal. Project components that are currently under design or construction include: provision of a second, publicly accessible landing facility, gangway and trestle to the south of the Ferry Plaza, construction of a "essential deck" (a design capable of withstanding a major earthquake and remaining functional) structure connecting the landing facility to the Ferry Plaza (which is also an "essential" structure) relocation of the north publicly accessible landing facility (south of its present location), construction of an "essential" deck structure connecting the landing facility to The Embarcadero, restoration of the central concourse in the Ferry Building providing a direct connection from the Embarcadero to the ferry landing facilities, and fabrication of signs, railing, lighting, benches, trash can, and other pedestrian amenities throughout the project area.

The project does use Proposition 116 funds (Clean Air and Transportation Improvement Act), but also includes grants from Section 1064 (FY 93 and 94) the Ferry Boat Discretionary Fund under ISTEA, the Transportation Enhancement Activities (TEA) fund (FY 94), and 2002 RIP funds. Proposition 116 funds will provide the local match for the federal grants.

The Waterborne Program should also be expanded to support the concept of a water taxi system (included in the City's *Transportation Element* and the Port's *Waterfront Plan*). The Program could also support the implementation of a hovercraft shuttle from the Ferry Building to the San Francisco International Airport and the Oakland International Airport (mentioned in the San Francisco Airport Master Plan and Environmental Impact Report). Finally, other waterborne projects will emerge from the Water Transit Authority's studies of the potential for an expanded and enhanced Bay Area water transit system.

9.4. Bicycle and Pedestrian Program

The 2001 CMP includes funds for several new bicycle and pedestrian projects. Many of these projects fall under DPT's Livable Streets program, which incorporates traffic calming, pedestrian and bicycle safety, and school area safety. Several projects will receive RIP funds, pending approval by MTC and the CTC of the 2002 STIP. These include projects to install ladder crosswalks and fluorescent yellow green signs, construct accessible median refuges, and install audible pedestrian signals and ADA pushbuttons.

Also proposed for funding in the 2002 STIP are design funds for bike lanes on Laguna Honda between Plaza Street and Dewey Boulevard. This project would close a gap in the bicycle network and rehabilitate O'Shaughnessy Path, making it safer and more accessible.

The City has received funding for bicycle and pedestrian projects from various sources, including TDA, TFCA, TEA, TLC, Prop. B, STP, CMAQ, and RIP. In addition, state and federal programming guidelines and the Authority's prioritization process support the inclusion of bicycle and pedestrian friendly features in roadway and transit projects, as appropriate.

10. Work Program Items – Key Milestones

- Develop a mechanism for project monitoring to comply with the timely use of funds requirements contained in SB 45 and AB 1012 – by February 2002
- Process CIP amendments and update description of CIP in CMP – Ongoing
- Track project delivery as needed to ensure compliance with SB45 timely use of funds requirements for STIP funds and obligation deadlines for federal STP, CMAQ and TEA funds – Ongoing
- Work with the Planning Department to develop criteria for the review of the draft CIP project list's consistency with the General Plan – By March 2002

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CHAPTER 9

DEFICIENCY PLANS

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Overview**
- **Deficiency Planning Process**
- **Special Issues**
- **Work Program Items - Key Milestones**

1. Legislative Requirements

The provision for Deficiency Plans is intended to work in conjunction with the requirement for annual monitoring of levels of service (LOS) on the designated CMP roadway network. In order to make its annual finding of conformance with the CMP, the Congestion Management Agency (CMA) must first ascertain that the LOS standard is not being violated. If, however, the results of monitoring on a CMP roadway segment show that LOS has fallen below the established standard, the CMA can still make a finding of conformance with the CMP if the local jurisdiction designates the roadway segment as deficient and develops a Deficiency Plan for it.

California Government Code section 65089.4(a) states *"A local jurisdiction shall prepare a Deficiency Plan when highway or roadway level of service standards are not maintained on segments or intersections of the designated system. The Deficiency Plan shall be adopted by the city or county at a noticed public hearing."* According to section 65089.4(c), Deficiency Plans must contain the following components: 1) an analysis of the causes of the deficiency, 2) a list of improvements that would have to be made to prevent the deficiency from occurring, including cost estimates, 3) a list of improvements proposed as part of the Deficiency Plan, and finally 4) an action plan for implementation of the improvements identified as part of the Deficiency Plan, including an implementation schedule. The improvements proposed must be drawn from an inventory of acceptable actions compiled by the air quality management district. The Deficiency Plan must "measurably improve" the overall LOS on the designated CMP roadway network, and "contribute to significant improvements in air quality." The statutes also require that the city or county forward the Deficiency Plan to the Congestion Management Agency, which must hold a public hearing within 60 days of receipt of the Deficiency Plan, and either accept or reject it, but not modify it. Rejection of a Deficiency Plan by the Congestion Management Agency will result in a finding of non-conformance with the CMP.

The preparation and review of Deficiency Plans should not be confused with the separate and independent City processes for review and approval of public or private development projects. It is not the purpose of these guidelines to amend, modify or change the independent requirements of City ordinances or the California Environmental Act (CEQA). The Deficiency Plan process should take advantage of any past CEQA analysis and avoid duplicating these past efforts if the analysis is still valid. Nevertheless, the assumptions incorporated into past EIRs and Transportation Impacts Analyses (TIAs), while reasonable at that time, may not be valid at the time of preparation of the Deficiency Plan.

While the Authority, as CMA, is required by state law to ascertain the City's conformance with the CMP, including findings to accept or reject Deficiency Plans as prepared by City departments, the statutes make no provisions and in no way require the Authority to provide funding for City departments' activities in connection with the development of Deficiency Plans. Similarly, CMAs do not receive state funding for their activities. Because of this, the deficiency planning process has been designed to maximize the use of information and data already required for non-CMP purposes and to minimize any costs to City Departments. In addition, timelines have been tailored to the City's budgetary process, to allow for any adjustments that might be necessary to respond to Deficiency Plan requirements.

2. Legislative Intent and Application to San Francisco

This section provides background information on Deficiency Plans and their applicability to San Francisco. For an overview of the Deficiency Plan development process, please see section 3.1. For a detailed discussion of the individual steps in the Deficiency Plan development process, please see section 4.1.

2.1 Deficiency Plans: What They Are

In 1990, the California voters approved Proposition 111; thus adding nine cents in additional tax to each gallon of gasoline sold in the state. The money was to be used to improve transportation throughout California. The year prior to Proposition 111's approval, the State Legislature approved AB 471 (Katz), the original CMP legislation[1]. AB 471 required all local jurisdictions to maintain the adopted LOS standard on all CMP roadways or risk losing their Proposition 111 gas tax revenues. The Legislature then revised the original legislation (through AB 1791 - Katz) to allow jurisdictions to continue to receive their share of Proposition 111 gas tax moneys when the level of service (LOS) on a CMP road segment or intersection falls below LOS "E" provided local jurisdictions prepared Deficiency Plans for those segments. The latest legislative revisions to the CMP statutes (AB 1963) include the following changes:

- Deficiency Plans must be completed within one year of the CMAs official notice of a deficiency.
- The definition of exempt trips have been expanded from inter-regional travel to include trips caused by construction, rehabilitation, or maintenance, impact of freeway ramp metering, traffic signal coordination, low-income housing, and traffic generated by high-density residential or mixed-use development located within a quarter mile of a fixed passenger rail station.
- If a CMA Board adopts a Finding of Non-Conformance, the Board notifies the State Controller who must hold the jurisdiction's Proposition 111 gas tax money in escrow for 12 months, at which point the money is transferred to the CMA.

The intent of Deficiency Plans, therefore, is to allow development to continue while at the same time forcing local jurisdictions to offset the congestion it causes. The law, however, does not specify how effective local jurisdictions' efforts must be and, after over a decade of living with the law, the collective experience across the state does not point to what level of effort is acceptable.

The Deficiency Plan legislation offers local jurisdictions two alternatives:

1) either eliminate the problem (correct the deficiency <u>where</u> it manifests itself). This is known as *direct remediation*; or

2) implement other actions that improve the overall performance of the CMP

[1] The 1989 CMP legislation was part of the AB 471 legislation known as the Katz-Kopp-Baker-Campbell Transportation Blueprint for the 21st Century. Voter approval of Proposition 111 on June 5, 1990 effectively enacted the CMP legislation into law.

network, even if the actions do not directly improve the original deficiency. These are known as *offsetting actions*.

Offsetting actions, as opposed to direct remediation, include capital improvements, transportation programs, services, or other activities that improve the countywide level of service. Direct mitigation involves removing the deficiency such that the LOS is improved above LOS F. A Deficiency Plan may include both remediation and offsetting actions. While the preparer of a Deficiency Plan may try to remediate the deficiency directly, the technically appropriate remediation may have prohibitive costs, regulatory obstacles, or overwhelming environmental consequences. Offsetting actions provide alternative compensations that may leave the facility no less deficient, but provide improvements in other part of the system.

Note that the questions are asked _after_ a deficiency has been detected (since under state law, Deficiency Plans cannot be required for predicted, future deficiencies). Thus, Deficiency Plans are *reactive* solutions applied after the problems exist. In other works, they impose marginal offsetting action but do not directly prevent the problem. Nevertheless, the results of a Deficiency Plan can be used to inform and influence the environmental review of subsequent, newly proposed developments.

It is important to recognize that while environmental analysis conducted pursuant to CEQA may provide information useful in the preparation of Deficiency Plans, these Plans serve a separate and distinct purpose. It is not the intent of these guidelines to create additional review processes for individual development or public construction projects.

2.2 Applicability to San Francisco and Relationship to Other Analyses

The San Francisco Planning Department requires project sponsors to prepare Transportation Impact Analyses (TIAs) for activities that have the possibility of creating significant transportation impacts. The TIA guidelines spell out procedures that provide a significant measure of the analysis and documentation that would be required as part of a Deficiency Plan. In addition, any project or activity required to prepare an EIR must also address many of the requirements of a Deficiency Plan. Nevertheless, these procedures do not obviate the need for Deficiency Plan procedures in San Francisco for the following reasons:

- A TIA *forecasts* the severity of a project's expected impacts on facilities, while a Deficiency Plan *implements* actions to mitigate -- or offset -- problems already detected (i.e., deficiencies *actually measured* on a facility).

- A TIA or EIR considers the cumulative impacts on a transportation facility of a proposed project in combination with other foreseeable similar projects. The Deficiency Plan, because its focus is on a *facility* rather than an individual project, considers multiple causes of the deficiency.

- CEQA findings approving a development project frequently include a Statement of Overriding Considerations, accepting transportation impacts in exchange for other benefits.

A TIA or EIR is prepared prior to project implementation, *attempting* to analyze and mitigate a project's potential negative impacts. If the project causes a deficiency, the Authority must conclude that (1) the TIA or CEQA analysis was flawed, (2) mitigation measures were not able to be implemented, or (3) it is not possible to impose mitigation on private developers without unacceptably constraining economic growth and/or it is not financially feasible for the City to implement mitigation. Deficiency Plans, therefore, take over where TIAs leave off. Conversely, TIAs may identify and address transportation impacts for projects that are statutorily excluded from Deficiency Plan analysis.

The intent, however, is to structure a Deficiency Plan process that takes maximum advantage of the analysis procedures and data resources already in place and minimizes the need for additional analysis requirements.

2.3 CMP Multimodal Network & Performance Monitoring

The CMP system consists of four subsystems: roadways, transit, bicycle, and pedestrian. The monitoring program measures level of service on the roadways and intersections. According to the State legislation [Government Code § 65089.3 (b)(1)(A)], deficiencies are detected only on the roadway system. Nevertheless, Deficiency Plans must take into consideration, and in fact depend on, the transit, bicycle and pedestrian systems to offset LOS deficiencies on the roads and intersections. The CMP road network is defined in Chapter 3. The other components of the CMP system are addressed in Chapter 5: Multimodal Performance Element.

3. Overview

This brief overview is intended as accompanying text to the flow charts in Exhibits 1,2, and 3. The sections that follow this overview provide further detail on each step shown in the flow charts. The charts use three types of symbols:

- an oval indicates information, data, or other types of inputs needed by the City (i.e., a department or the Mayor's Office) or the Authority to take action or make a decision.
- a rectangular box indicates an action taken by the Authority, the Mayor's Office, the lead department, or other city departments.
- a diamond indicates a decision made by either the Authority staff or the Authority Board. Unless explicitly stated as the "Authority Board", the word "Authority" always connotes Authority staff.

The flow chart consists of three, sequential exhibits representing the Deficiency Plan process from the moment where the deficiency is detected all the way through the point when the Authority Board accepts or rejects the Deficiency Plan.

Exhibit 1. Deficiency Detection and City Notification

The box and four connecting ovals at the top of Exhibit 1 show that the Authority monitors the CMP roadway network and detects a potential deficiency when the level of service (LOS) on any non-exempted segment of the CMP roadway network goes to LOS F. Exempted segments are those that were found at LOS F during the first monitoring cycle in 1991 (see Chapter 4). The dotted oval indicates that the Authority may provide the City with advanced warning of potential future deficiencies by incorporating the results of studies by other departments such as transportation impact analyses (TIAs) or environmental impact reports (EIRs). The Authority is required by law only to detect and notify the City of a current deficiency.

Once the Authority detects a deficiency, it must determine if the deficiency has been caused by external causes, exempt causes, or temporary causes. If subsequent investigation and modeling reveals the deficiency is real, the Authority Board adopts a finding of "Deficiency" and notifies the City (Mayor's Office). This notification includes information on the nature and cause of the deficiency.

In the box at the bottom of Exhibit 1, the Mayor's Office assigns a city department to act as the lead department for the preparation of a Deficiency Plan. At this point, the deficiency detection and notification stage is complete and the process continues as shown in Exhibit 2.

Note that no action by the Mayor's office is required prior to adoption by the Authority of a finding of deficiency. The timelines in Exhibit 1 assume that LOS monitoring is performed in September and October, and that all follow up verification monitoring is completed by the following April. The operative date for initiation of the Deficiency Plan preparation process is the Authority's adoption of the finding of deficiency. This schedule provides an opportunity for City Departments to incorporate funding requests for Deficiency Plan activities into the City's budget process in April and May.

Exhibit 2. Deficiency Analysis and Remediation Plan Preparation

State law requires that a Deficiency Plan first analyze and determine what it would take to correct the problem through direct action on the roadway found to be deficient. This direct action is called a Remediation Plan (shown as the three boxes inside the dotted line). The Remediation Plan usually involves adding sufficient capacity to the roadway to allow traffic to flow at LOS "E" or better. The Remediation Plan must include any and all programmed improvements, as shown by the three ovals to the right. Note that these three ovals represent mitigation measures, exactions or projects already required by adopted EIR s or Plans, not new requirements.

The lead department then submits the Remediation Plan, including its own determination as to the Plan's feasibility. The Authority evaluates the Remediation Plan and either accepts or rejects the lead department's finding. If the lead department finds it can mitigate the deficiency, it must prepare an Implementation Plan for its proposed Remediation Plan. If the lead department finds it cannot remediate the deficiency and the Authority concurs, the lead department proceeds with the preparation of a Deficiency Plan (presented in Exhibit 3).

The Authority's evaluation of the lead department's findings will involve its own feasibility criteria, consultations with the departments that would be called upon to implement the Remediation Plan, the effects of CIP projects and other capital investment on the deficient segment, and consultation with the Planning Department on General Plan consistency, as appropriate. The feasibility criteria include financial feasibility, environmental compatibility, and consistency with the City's transportation planning priorities and policies. In addition, the Authority considers the ability of other departments to help mitigate the deficiency and the likelihood that CIP projects or other programmed improvements will eventually and significantly improve the deficient segment.

If the lead department finds that the package of remediation measures is feasible, it must prepare an Implementation Plan. The Authority may either accept or reject the Implementation Plan for the Remediation Plan. If rejected, the lead department must prepare an alternative. If accepted, the Authority modifies the CIP or other transportation programming documents to conform to the Remediation Plan improvements. All departments called upon to implement portions of the Remediation Plan must enter into an inter-agency agreement stating each department's responsibility and funding sources.

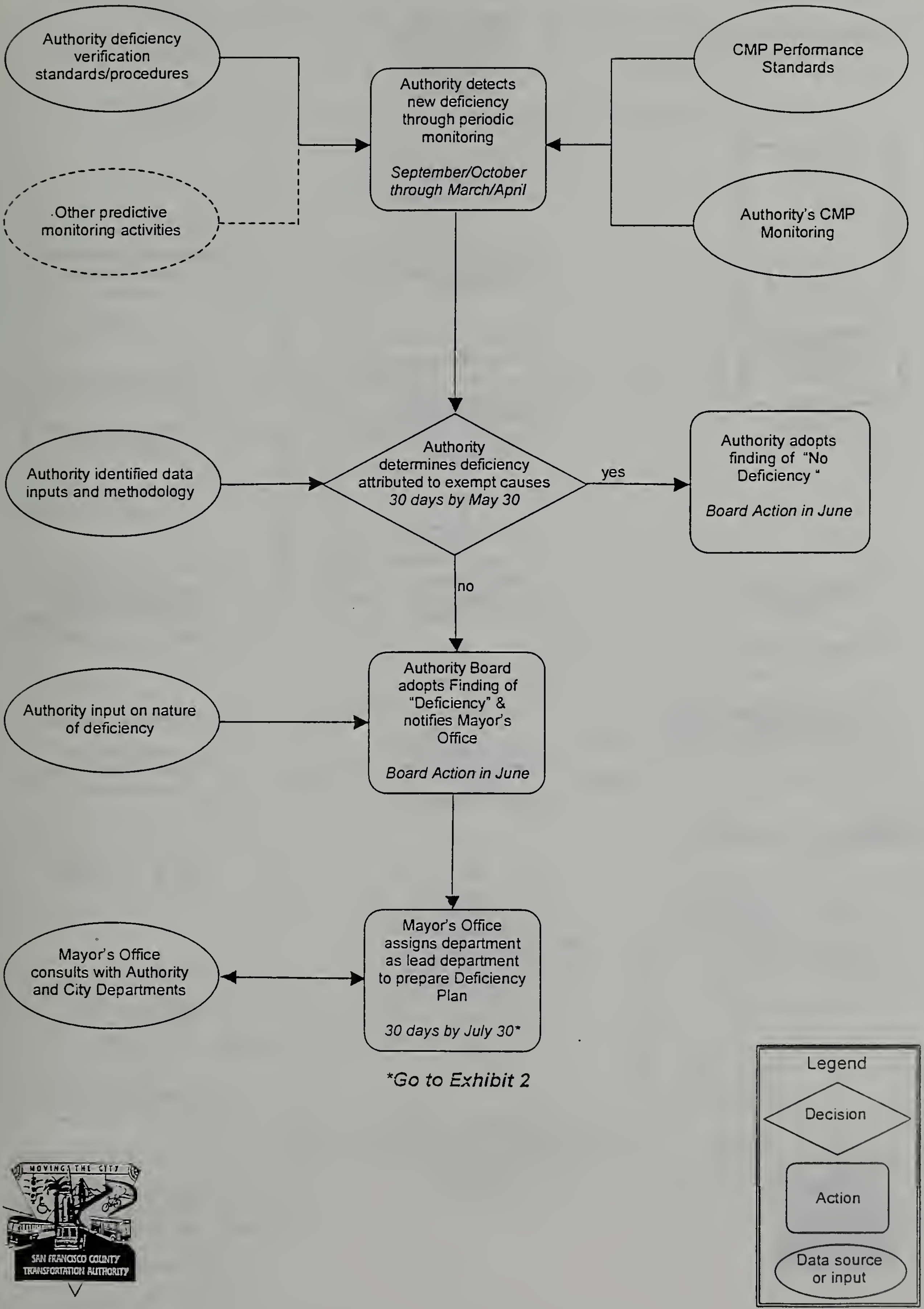
Exhibit 3. Deficiency Plan Evaluation and Approval

The preparation of a Deficiency Plan involves two basic steps: 1) the compilation of a list of Deficiency Plan actions and the subsequent preparation of an Implementation Plan. In the first step, the lead department should include actions that will bear directly on the deficient road segment, actions that will improve system-wide LOS (as measured by the multi-modal performance measures), and the actions listed by the BAAQMD.

The Authority either rejects or accepts the lead department's proposed list of Deficiency Plan actions. If accepted, the lead department prepares an Implementation Plan and submits this plan for the Authority's approval. If the Authority rejects the action list, the lead department must prepare an alternative action list for the Authority's review.

The Authority uses similar adequacy criteria as described in its evaluation of the Remediation Plan (Exhibit 2). If the Authority accepts the Implementation Plan, the Authority Board will hold a noticed public meeting and adopt a Finding of Conformance. If, however, the Authority and the lead department are unable to agree on an Implementation Plan, the lead department may either try again, or submit its Final Deficiency Plan (including its Implementation Plan) to the Authority Board for Board action. If the Authority Board issues a Finding of Non-Conformance, the Authority must notify the State Controller to withhold funds. The funds are held in escrow for 12 months and then turned over to the Authority (as the City's Congestion Management Agency).

Exhibit 1: Deficiency Detection and City Notification



**Go to Exhibit 2*

Exhibit 2: Deficiency Analysis and Mitigation Plan Preparation

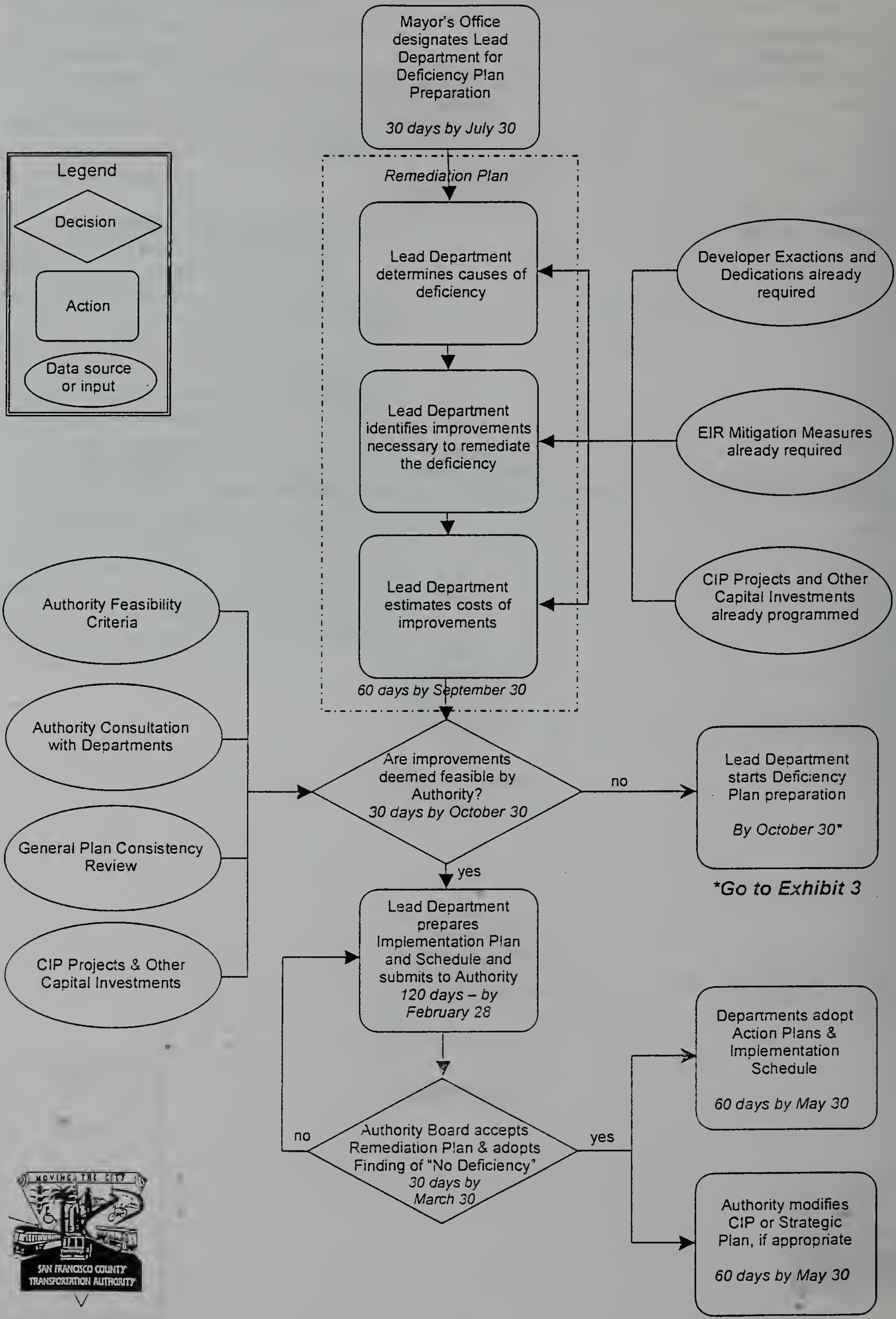
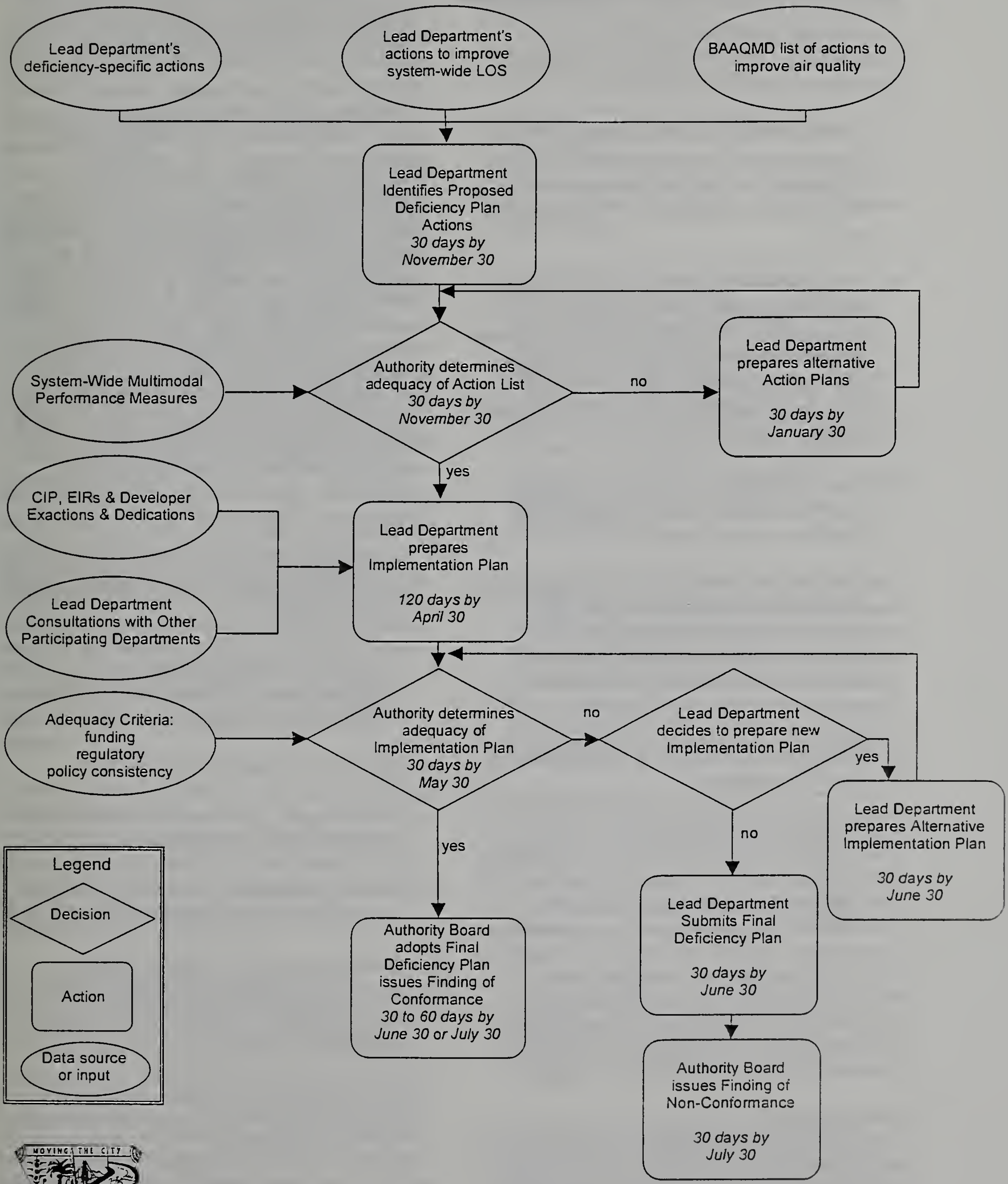


Exhibit 3: Deficiency Plan Evaluation and Approval



SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

4. Deficiency Planning Process

The following sections describe the methodology to be followed in preparing Deficiency Plans. They address:

a) The detection and determination of the deficiency and the designation of a city department as the lead department that will develop a Deficiency Plan (Section 4.1).

b) The preparation of the actual Deficiency Plan, beginning with the development of a Remediation Plan that proposes roadway improvements to remove the deficiency and estimates their cost, then proceeds with the development of a list of offsetting actions (Section 4.2)

c) The preparation of an Implementation Plan for actions recommended in the Deficiency Plan (Section 4.3).

This process is designed to capitalize on the strengths and capabilities of each city department or agency in terms of transportation impact analysis, LOS monitoring, or enforcement of mitigation measures.

4.1 Deficiency Detection & Designation of Lead Department

4.1.1 Deficiency Detection

The Authority will continue to conduct floating cars runs as part of its periodic monitoring of the CMP roadway network. Chapter 4 provides detailed background on monitoring procedures. While this monitoring program will detect deficiencies once they have occurred, it will not forecast future traffic conditions or the location of potential future deficiencies. Please see Section 5.3 for a discussion of future deficiency detection.

Determination of Causes

Upon detection of a deficiency, the Authority will consult with MTC to determine if external trips or pass through trips may have caused the deficiency. It will also review all relevant CEQA traffic analysis and/or TIAs of recently completed projects. It will then use the San Francisco Travel Demand Forecasting Model, the Transportation Analysis Database (TAD), sketch planning techniques, and other means to isolate and examine the cause(s) in more detail. See Chapter 4 for more detail on deficiencies through LOS monitoring. Following the detection of a deficiency through the monitoring of LOS on the CMP roadway network, the Authority completes an investigation to determine if any trips are exempt and if the deficiency still exists after removing the exempt trips from the deficient roadway segment. The State legislation requiring Deficiency Plans has specifically exempted the trips generated by specific activities [Government Code § 65089.4. (f)]. Thus, a deficiency that results because of a exempt activity will have the exempt trips deducted and be re-evaluated to verify whether the roadway segment in question has a deficiency. The exempt activities include:

- Inter-regional travel (i.e., pass through trips which have neither origin or destination in San Francisco);
- Construction, rehabilitation, or maintenance of facilities that impact the CMP roadway network;
- Impact of freeway ramp metering;
- Traffic signal coordination by the state or multi-jurisdictional agencies;
- Traffic generated by the provision of low-income and very low-income housing; and
- Traffic generated by high-density residential or mixed-use development located within a quarter mile of a fixed passenger rail station.[2]

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[2] "High density residential development" means a minimum of 24 dwelling units per acre and equal to 120 percent of the maximum density allowed under the local general plan and zoning ordinance, or a minimum density of 75 dwelling units per acre. "Mixed use development" must

If the exempt trips are deducted and the deficiency still exists (i.e., the LOS on the segment in question has not improved to at least LOS "E"), a Deficiency Plan must be prepared.

Findings of Deficiency -- Notifying the Mayor's Office

If, after subtracting the allowed exemptions (see Section 4.1.3), the LOS on the roadway segment in question has not improved to at least LOS "E" (calculated according to procedures detailed in Chapter 4), the Authority Board will adopt a Finding of Deficiency and notify the Mayor's Office of the need for preparation of a Deficiency Plan. The Authority may, as part of this notification, provide an assessment of the potential causes of the deficiency to aid the Mayor's Office in designation of a city department as a lead department for the preparation of the Deficiency Plan.

The Authority may recommend to the Mayor's Office that the lead department consider future (predicted) deficiencies in preparing its Deficiency Plan. Deficiency Plans that apply to future as well as current deficiencies may result in synergies, offsetting deficiencies with fewer actions than would be necessary if separate Deficiency Plans were prepared sequentially. See Section 5.3 for further details.

State law does not require Deficiency Plans to consider future deficiencies. The decision to include future deficiencies in a Deficiency Plan is at the discretion of the Mayor's Office. The Authority will help coordinate information to facilitate this proactive approach to Deficiency Plan preparation.

4.1.2 Lead Department Designation

Upon notification of a deficiency by the Authority, the Mayor's Office will designate a city department as lead department for the preparation of a Deficiency Plan. As the lead department, the designated department may request the involvement of other departments, especially where design, implementation, and/or funding of likely offsetting actions are not within the jurisdiction of the lead department. The Authority will be available to consult with the Mayor's Office.

4.2 Deficiency Plan Preparation and Approval

The preparation of a Deficiency Plan involves six basic steps:

1) The lead department prepares a Remediation Plan which includes: a) a description of the causes of the deficiency; b) a list of all improvements necessary to fully remediate the problem on the deficient roadway itself; and c) an estimate of the cost and available funding for those improvements. The lead department includes a statement as to the feasibility of the Remediation Plan (Section 4.2.1).

2) The Authority evaluates the feasibility of the Remediation Plan and accepts or rejects the lead department's findings (Section 4.2.2). If the lead department proposes a feasible Remediation Plan, it skips to Step 5. If the Authority accepts that the Remediation Plan is not feasible, then:

3) The lead department prepares a Deficiency Plan Action List (Section 4.2.3).

4) The Authority reviews the Action List and accepts or rejects it (Section 4.2.4).

5) The Lead Department prepares an Implementation Plan, identifying responsible departments, funding sources, and regulatory authority (Section 4.4.1).

6) The Authority reviews Implementation Plan and, if acceptable, approves or rejects the Final Deficiency Plan (Section 4.4.2).

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have more than one half the land area or floor area used for high-density housing.

For deficiencies caused by large projects, some of the analysis required in these steps may have been completed through the projects' EIRs. While the analysis and any other relevant documentation may be used *verbatim* for the Deficiency Plan or Implementation Plan, the Final Deficiency Plan documentation must conform to the requirements outlined in the six steps above and described in more detail below.

4.2.1 Remediation Plan to Remedy the Specific Deficiency

Analysis of Deficiency's Causes

State law requires the Deficiency Plan to identify the causes of the deficiency [Government Code § 65089.3(b)(1)(A)]. The lead department may apply the Authority's Finding of a Deficiency as supporting analysis of the deficiency's causes. This analysis is not intended to be exhaustive or highly detailed. Sketch planning methods using standard procedures are adequate.

The analysis of the deficiency's causes should include the effects of future CIP improvements. A deficiency may be removed when a roadway improvement programmed in the CIP increases the capacity of the roadway in question. If the lead department determines that the effects of any CIP improvement scheduled to begin within the seven year time horizon of the CIP will remove the deficiency, the Authority -- after review -- can make a Finding of No Deficiency. The lead department, however, must demonstrate this CIP improvements will be completed and functioning within ten years of the current CIP.

Improvements to Remedy Deficiency

Once the cause(s) of the deficiency have been determined, State law [Government Code § 65089.4 (c) (2)] requires that the lead department identify:

> *"A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements."*

This requirement is intended to encourage the lead department to try to remove the deficiency through direct improvement of the roadway (i.e., improve the performance of that segment to LOS "E" of better). The lead department will use sketch-planning methods consistent with both MTC and the Authority's practices and data to estimate the effects of the improvements on traffic flow on the deficient facility. The estimation methodology measures the effects of capacity improvements on the level of service and indicates whether the improvements provide capacity at an order-of-magnitude commensurate with the deficiency.

The compilation of this list should include any relevant projects included in the CIP or CEQA mitigation measures included in specific EIRs. The lead department should provide detailed descriptions of any EIR mitigation requirements. A proposed Remediation Plan may include the same (or modifications to) improvements already specified and funded in an EIR, the CIP, or developer exactions or dedications found to be relevant, including scheduled implementation, project characteristics, and funding sources. The intent here is <u>not</u> to reopen the CEQA process for EIRs already completed, but rather to give the City credit by counting any <u>required</u> EIR mitigation measures as contributing to remediate the identified deficiency.

Cost of Improvements

Once the lead department has specified a sufficient number of improvements to mitigate the deficiency, it should prepare cost estimates. The estimates should include all costs (i.e., right-of-way acquisition, construction, design, etc.) and a description of funding identified for these improvements, including those already specified as mitigation measures in any approved EIRs. If detailed cost information is not available from an existing, reliable source, the lead department may use standard procedures to estimate an order-of-magnitude cost.

Conclusions
The result of this effort is a Remediation Plan. The Remediation Plan must include the following:

1) an estimate of the extra roadway capacity needed to remove the deficiency (i.e., improve the LOS to Level "E" or better).

2) an estimate of the total costs (operating and capital) of the capacity improvements

3) a description of which improvements are already funded through measures required by project approval, the CIP or developer exactions or dedications already required (see Exhibit 2).

If the Remediation Plan concludes that deficiency can be removed from the segment in question through feasible improvements, the lead department should prepare an Implementation Plan for the Remediation Plan according to the process described in Section 4.4).

4.2.2 Remediation Plan Evaluation

Within 30 days of receiving the Remediation Plan from the lead department, the Authority evaluates the adequacy of the Plan conclusions according to the following three criteria:

1) **Sufficient Improvements to Capacity:** Are the proposed improvements adding sufficient capacity to the roadway in question to increase the LOS to level "E" or better?

2) **Financially Reasonable:** Are the cost estimates for the proposed improvement reasonably accurate? Are the Remediation Plan's conclusions regarding the feasibility or infeasibility of funding the improvements reasonable, especially with regard to the potential variations of funding, timing of fund flow, and the level of control over the source of funding?

3) **Implementability:** Can the Plan overcome environmental, regulatory, and community obstacles within the ten year time frame and does the lead department have sufficient cooperation from other departments and agencies involves in the Plan's implementation? Is the Plan consistent with the General Plan? Are the modifications to the CIP, if any, reasonable?

Based on the lead department's submittal (and the feasibility criteria above), the Authority will make a finding of either feasibility or unfeasibility. If the Remediation Plan is feasible, the lead department will prepare an Implementation Plan (see Section 4.4). If the Authority finds that the Remediation Plan is not feasible, the lead department will prepare a Deficiency Plan Action List (see Section 4.3).

4.3 Deficiency Plan Action List Preparation

If the Authority determines that the Remediation Plan is infeasible, the lead department prepares a list of offsetting actions that will improve the system-wide multimodal level of service but may have only limited effect on the deficient facility itself. The Authority will review this proposed list and approve or reject it.

4.3.1 Action Selection

The lead department will select actions according to two criteria: 1) actions that have some direct mitigating effect on the deficiency; and 2) global actions that will measurably improve multimodal LOS somewhere in the system. These criteria suggest the following categories of actions:

1) **Deficiency-Specific Actions**: These actions should be in close proximity to the deficient facility or cause a measurable improvement in the performance of the deficient facility. Such actions may include some of the improvements specified in the Remediation Plan (see Subsection 3.3). They may, for instance, be based on mitigation measures that

were included in a project EIR but rejected by the decision maker as infeasible, if the basis for the infeasibility finding has been removed by, for example, new legislation authorizing imposition of transportation exactions that has been adopted since project approval and that is applicable retroactively, or new funding sources that have been obtained to provided additional transit service.

2) **Global Actions To Improve System-wide Multimodal LOS**: These are actions aimed at improving system-wide LOS. In general, these actions may involve advancing the scheduled implementation of CIP projects, or reconsideration of projects that were considered but not included in the current CIP. They may also involve services or multimodal programs that may help shift travel demand away from single occupant vehicles or discourage or eliminate some of those trips. The selection of non-CIP projects as Deficiency Plan actions will require Authority approval in order to maintain the integrity of the CIP process.

The Bay Area Air Quality Management District (BAAQMD) has prepared a list of approved Deficiency Plan actions. The CMP legislation requires that all Deficiency Plan actions come from that list. In general, this list favors actions that relieve congestion through increased use of alternatives to the single occupant vehicle (e.g., transit, pedestrian, bicycle, telecommuting, Travel Demand Management measures, etc.).

The lead department has 60 days to prepare a Preferred Action Plan List. Each action on the list must show its estimated capital (or start-up) and operating (or on-going) costs. The lead department submits this list to the Authority for its consideration.

Depending on the complexity and severity of the deficiency, the lead department may choose to prepare (or Authority may request) one or more alternative action plans. The alternative plans may vary regarding cost, policy priorities (e.g., transit versus roadway), or functional approach (e.g., Transportation System Management-based actions versus capital-intensive actions). Alternative action plans, for example may stress more land use-intensive actions, transit-intensive actions, or congestion pricing strategies.

4.3.2 Action Plan List Review

The Authority will evaluate the preferred Deficiency Plan Action List, including each action's estimate cost within 30 days of submittal by the lead department. The Authority's review consists of a four step procedure: 1) apply adequacy criteria; 2) evaluate sufficiency of Action Plan; 3) Confirm General Plan consistency with the Planning Department; and 4) issue findings.

Adequacy Criteria

The CMP legislation, as amended, includes three transit performance measures (in addition to the LOS performance measure) for the evaluation of current and future system performance and the effectiveness of Deficiency Action Plans [Government Code § 65089.(b)(2)]. The three transit performance measures gauge public transit frequency, routing, and coordination of service provided by separate operators.

As required by CMP legislation, the Authority has developed additional multimodal performance measures that go beyond the traditional roadway-based Level of Service (LOS) measures. Our emphasis has been on user-based measures that are significant in terms of explaining or predicting people's choice of a mode of transportation in the City. The Authority Board adopted the first set of multimodal performance measures in August 1998 (see Chapter 5). These include bicycle and pedestrian safety (number of accidents/mile of roadway), transit reliability (% of scheduled runs that do not occur) and other measures. After these measures have been further refined and fully tested, they will then be used to evaluate the proposed list of Deficiency Plan Actions. Additional measures may be developed in the future.

Action List Sufficiency
The Authority's evaluation of the proposed Action List involves some estimate of benefits and costs. As mentioned above, the Authority has developed an initial set of multimodal performance measures that are more sensitive to the effects of a broader range of actions than the traditional roadway LOS measure. The Authority will evaluate the sufficiency of the entire action list as a package rather than try to measure the effects of individual actions or combinations of actions.

Issuance of Adequacy Findings
Within 30 days of the lead department's submittal, the Authority will issue a finding determining whether the Action List is adequate. The Authority's finding will be based on the impact of the proposed actions on system-wide, multimodal performance. This step is intended to ensure that the types of actions proposed are commensurate with the magnitude of the deficiency. Funding feasibility is addressed under 4.4.

4.4 Implementation Plan

The Authority requires the lead department to prepare an Implementation Plan within 90 days of the Authority's finding as part of the Deficiency Plan Document. This period includes the time for any city commission actions necessary for the execution of the Implementation Plan. The Implementation Plan identifies the responsible implementing department(s) for each action, and the sources of funding. If legislative or administrative authority is necessary, the Implementation Plan also describes the authority that the implementing department will require to carry out the action.

4.4.1 Implementation Plan Development

The lead department is responsible for developing the Implementation Plan. For each action in the Deficiency Plan, the lead department must specify the following:

1) The final cost of the actions and the sources of capital (up-front) and operating (on-going) funds. This funding plan should include specific and detailed references to all EIRs that include the same Deficiency Plan actions as part of their *required* mitigation measures. It must also note any correspondence with CIP projects.

2) A monitoring program to verify the action's implementation. The description of the monitoring program should conform to the CEQA monitoring requirements and must refer to any EIRs that include monitoring of mitigation measures that are the same as the Deficiency Plan actions.

3) A schedule for implementation. All actions must be implemented within the seven-year time horizon for the current CIP. If a Deficiency Plan action is programmed for funding in the sixth or seventh year of the CIP, it will need to be fully implemented with three years of its initiation in order to be considered a feasible action within the Deficiency Plan's ten-year horizon.

4) Identification of city departments responsible for the action's funding, implementation, and on-going support/operation. The lead department must assess the likelihood of other departments' ability to implement all actions that the lead department cannot implement itself.

4.4.2 Other Departments

The lead department is unlikely to have comprehensive authority over the implementation of all actions on the approved action list. Clear identification of all departments responsible for implementation, therefore, is essential for the Authority's approval of the Final Deficiency Plan. Furthermore, the Implementation Plan must include an interdepartmental agreement among all responsible implementing departments stating each department's agreement to fulfill their responsibilities for implementing Deficiency Plan actions.

4.4.3 Identification of Funding

The Implementation Plan must include a detailed funding plan. This plan must identify specific sources of money and the methods of financing if necessary. Any Deficiency Plan Actions that are included in the CIP may be referenced to that document. If funding for capital projects is already planned and required of developers, the funding plan must reference the development agreement, vested map, or other document committing funds (see Exhibit 2).
Under some circumstances, Deficiency Plan actions may also depend on capital or operations funds from state or federal sources. Such actions must be included in the Regional Transportation Plan (RTP) Track I project list compiled by MTC. If actions are funded through the City's Downtown Development Fee Program, the Implementation Plan must reference the expenditure plan of the Development Fee Program, indicating the specific funding commitment.

4.4.4 Implementation Plan and Deficiency Plan Approval

Within 30 days of submittal by the lead department, the Authority will either accept or reject the Implementation Plan. The Authority will make its determination based on the required elements of the Implementation Plan, as detailed in 4.4.1. Note that lack of an acceptable funding plan will result in rejection of the Implementation Plan. Once the Authority has approved the Implementation Plan, the lead department will have additional 30 days to finalize and submit the Final Deficiency Plan document for Authority Board approval. Within 30 days of submittal of the final Deficiency Plan by the lead department, the Authority Board will hold a noticed public meeting and either approve or reject it.
Note that if the Authority rejects the Implementation Plan, the lead department may either propose an alternative Implementation Plan within 30 days, or choose to submit the Final Deficiency Plan with the Implementation Plan as is. In the latter case, the Authority will notify the Mayor's Office of its intent to reject the Final Deficiency Plan due to the inadequacy of the Implementation Plan.

If the Authority Board rejects the Final Deficiency Plan and issues a finding of non-conformance, pursuant to the State law (Government Code 65089.5), the Authority must submit its findings to MTC and the State Controller for the withholding of State funds.

4.4.5 Deficiency Plan Document Structure

A Deficiency Plan Report must include the following sections:

1.0 Introduction Identification of the Deficiency's Causes, including:

- 1.1 Description of the Deficiency (i.e., road segment
- 1.2 Description of the adjacent facilities
- 1.3 Analysis of the causes of the deficiency.
- 1.4 Description of the existing traffic conditions within the boundaries.
- 1.5 Projection of future transportation conditions for at least the next 10 years.
- 1.6 A map of the area, the deficiency, and adjacent facilities and transit routes.

2.0 Remediation Plan, consisting of:

- 2.1 An estimate of the extra roadway capacity needed to remove the deficiency
- 2.2 An estimate of the total costs (operating and capital) of the capacity improvements
- 2.3 A description of improvements that are already programmed through individual project conditions of approval, the CIP, or developer exactions or dedications.

3.0 List of Actions, broken out into:
3.1Deficiency-Specific Action:

3.2 Global Actions To Improve System-wide LOS

4.0 Implementation Plan, specifying the following:
4.1 The final cost of the actions and the sources of capital (up-front) and operating (on-going) funds.

4.2 A monitoring program to verify the action's implementation.

4.3 A schedule for implementation.

4.4 Identification of city departments responsible for the action's funding, implementation, and on-going support/operation.

5.0 Identification of Other Departments' Responsibilities for Implementation

6.0 Identification of Funding

5. Special Issues

The following sections discuss special circumstances where the Deficiency Plan process, as described in Section 4.0, may have to be modified. Treatment of these issues is not intended to be exhaustive; thus, the Authority may expand this section in the future as it gains experience with guiding Deficiency Plans preparation.

5.1 Multi-County Deficiency Plans

Deficiencies may occur because of the activities of other counties or they occur on a regional facility (e.g., the Bay Bridge). Under such circumstances, the Authority will take the lead in coordinating the preparation of a Deficiency Plan, following MTC's process and mutual agreements with other agencies. More specifically, the Authority will coordinate with other congestion management agencies (CMAs) and regional agencies (e.g., MTC, BAAQMD, ABAG, etc.). The Authority may request the Mayor's Office to designate other city departments to prepare the Remediation Plan, Deficiency Plan Action List, or the Implementation Plan. Furthermore, other departments may be designated as the responsible agencies for the implementation of the Deficiency Plan.

5.2 Deficiency Plans Addressing Multiple Deficiencies

The Mayor's Office may request that the lead department prepare a Deficiency Plan that covers more than one deficient roadway segment. A consolidated Deficiency Plan for multiple deficiencies could save the City time, money, and the effort required to prepare multiple Deficiency Plans. Efficiencies may also be realized if the lead department tackled future deficiencies (identified through the monitoring program described in Chapter 4) as part of a Deficiency Plan addressing an existing deficiency (see Section 5.3).

Multiple deficiencies may be likely if an area or transportation corridor are impacted by large land use projects (e.g., Mission Bay), significant transportation infrastructure projects (e.g., demolition of the Central Freeway), or pronounced socioeconomic trends (e.g., increased commuting from the East Bay. The multiple deficiencies may be within close geographical proximity or distributed along a corridor (or parallel facility) but they must be functionally related (i.e., result from or be multiple manifestations of the same cause). Under such circumstances, the Authority may encourage a single area-wide, or corridor Deficiency Plan.

The process would be similar to that described in Section 4.0. Nevertheless, the lead department must include the following considerations:

1) Review of past and current EIRs to determine if these documents anticipated the compounding effects of their individual impacts and proposed appropriate mitigation measures.

2) Modeling or estimation of traffic within the area or corridor to determine the effectiveness of the Remediation Plan improvements and possible synergies between actions on the Deficiency Plan Action List.

3) Consideration of funding, regulatory, or policy issues that may improve or degrade the feasibility of the proposed Implementation Plan.

4) Coordination with the CIP and other transportation programming and/or planning documents designed to address transportation planning for a subarea of the city, a specific corridor, or multiple facilities or modes.

5.3 Future Deficiencies

The legislation does not require that local jurisdictions address deficiencies anticipated through prediction or modeling of future conditions. The requirement for Deficiency Plans is triggered by the results of actual monitoring of the CMP network. Future deficiencies may be predicted by: a) project-specific traffic impact analyses (TIAs); b) project EIRs; and c) program-level EIRs (e.g., the Waterfront Plan EIR). Over time, the Authority will use information from these *predictive* detection efforts as part of its monitoring procedure. Further detail on predictive detection of deficiencies is expected to be available in the 2003 CMP after further development, testing, and updating of the San Francisco Travel Demand Forecasting Model, and subsequent revisions of the Land Use Analysis Guidelines (Chapter 7) are completed. With the San Francisco Model, the Congestion Management Program will improve its ability to maintain acceptable system performance and prevent or lessen the impacts of future deficiencies. In addition, the Authority will use the Strategic Analysis Reports (SARs) to help highlight the implications of future deficiencies. The following are special cases where it may be appropriate to prepare a Deficiency Plan to address future deficiencies.

5.3.1 Multiple Deficiencies

Addressing future deficiencies may be in order if it is found that it would support or complement the development of a Deficiency Plan for current deficiencies. This could result in efficiencies in terms of Deficiency Plan preparation efforts and produce a more effective plan. The lead department will include its proposal to address multiple future deficiencies in its Deficiency Plan Action List for review by the Authority.

5.3.2 Future Deficiencies Caused by Changes in Transportation Infrastructure or Land Use

Future changes to the transportation infrastructure or services may cause deficiencies. The demolition of the Central Freeway, for example, could have dramatic impacts on the LOS of Market Street. Most large infrastructure projects will prepare EIRs that analyze potential deficiencies. As noted in Section 2.2, however, there are limitations on the degree to which the EIR would consider the cumulative impacts of other proposed infrastructure projects in the City. In addition, the EIR process may lead to the adoption of a Statement of Overriding Considerations, accepting large transportation impacts in exchange for "larger" benefits, and override mitigation measures. Under these circumstances, the lead department preparing the project EIR should be able to incorporate most of the Deficiency Plan requirements into its CEQA documentation.

There are many potential causes of deficiencies, particularly changes to the transportation infrastructure in the City as well as land use changes. The following sections highlight activities by City departments that could impact deficiency planning in San Francisco. The descriptions are not meant to be comprehensive, but rather to exemplify special issues related to departmental activities.

Department of Public Works (DPW)
DPW develops a Capital Improvement Program. This results in numerous con-

struction activities that should help pre-empt deficiencies. Occasionally, however, some projects may be at the expense of mixed flow. According to the legislation, the Authority must declare a deficiency when LOS for mixed flow falls below level E.

Department of Parking and Traffic (DPT)
DPT regulates on street parking and City-owned off-street parking. DPT plans and manages signal design; modification, timing and interconnections, as well as traffic signing, pavement markings and channelization, traffic regulations such as turn prohibitions and tow away zones. DPT enforces parking violations while the Police Department enforces moving violations. DPT normally works as part of Technical Advisory Committees on major transportation projects. Typically, none of these activities require formal transportation impact analysis. DPT, however, may become involved in some large-scale roadway projects (e.g. DPT was the lead agency on the Central Freeway replacement study), which will require formal transportation impact analysis.

Municipal Transportation Agency (Muni)
As the agency that plans and operates the City's public transit system, Muni's activities have direct impacts on the transportation system's LOS. To the degree that a traveler may choose between Muni and driving their car, Muni ridership levels affect congestion levels. In turn, mode choice is affected by the quality of service Muni provides. Operating changes and fare increases could result in modes shift significant enough to trigger deficiencies. Changes in operating policies (e.g., distance between bus stops) or even capital improvements (e.g., installation of bus stops can also result in deficiencies).

Muni's activities can also help preempt deficiencies. For instance, Muni recently implemented a restructuring of transit service in the South of Market Area (SOMA). This was undertaken in response to the rapidly change land use patterns and continued growth in SOMA.[3]

SOMA used to be primarily a warehousing district, but has been evolving over the last several decades to one with significant housing, office, retail, and major entertainment and cultural destinations. Improving transit service to better meet new travel demand patterns in SOMA would have a significant influence on the future mode split and therefore, system performance in SOMA.

San Francisco Redevelopment Agency (SFRA)
SFRA has jurisdiction over numerous development projects throughout the city. These activities include the Hunter's Point and Treasure Island base conversion projects, Yerba Buena Center, Rincon Point South Beach, and many other residential infill projects.

Port of San Francisco
The Port of San Francisco has jurisdiction over the seven and a half miles of Bayside waterfront, running from the Hyde Street Pier (Fisherman's Wharf) to India Basin (Pier 98) and from the piers themselves to adjacent parcels (sea wall lots).

Waterfront Plan: For the first time in the City's history, the Port of San Francisco has prepared a Waterfront Plan regulating future development of the seven and a half miles of waterfront property. The Plan provides for a wide range of land uses and has strict design guidelines that will control traffic impacts. Nevertheless, the majority of potential land use will generate considerably more trips than current uses; thus, deficiencies are likely.

Planning Department
The Planning Department is responsible for land use planning and development management. This role, stipulated in the City

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[3] See Authority's *Multimedia Gulch* and *Traffic Impacts in SOMA Strategic Analysis Reports*, for further information and policy-level analysis of transportation issues in SOMA.

Charter, gives the Planning Department direct or oversight responsibility for every land use project from its initial design stages through environmental impact analysis, to final completion. The Authority expects the total amount of small-scale growth that can occur over the next twenty years to be insufficient to cause deficiencies. Large-scale projects, however, will have major impacts. Example of such projects include:

- Revised Mission Bay Project;
- Rincon Point South Beach Redevelopment Area;
- Re-Use of Treasure Island, and Hunter's Point Naval Shipyard;
- Revised South of Market Specific Plan; and
- Transbay Terminal Replacement.

In addition, the Planning Department oversees preparation of Transportation Impact Analyses (TIAs) and its Office of Environmental Review (OER) coordinates CEQA review and EIR preparation for development projects. All of these documents are intended to anticipate the impacts of a proposed project on the transportation system; thus, they have direct relevance to the Deficiency Plan if a project's impacts cause a deficiency.

6. Work Program Items - Key Milestones

- Issue final determination of deficiency on LOS F segments and notify City Departments - By May 2002
- Report results to Planning and Programs Committee of Authority Board in May 2002
- Provide review and comments to City Departments preparing Remediation Plans - After June 2002, as required
- Review and approve Remediation Plan – As required
- Provide review and comments to City Departments preparing Deficiency Plans if no approval to Remediation Plan is given – As required
- Review and approve final Deficiency Plans submitted by City Departments - As required
- Monitor Deficiency Plan implementation - As required

CHAPTER 10

TRAVEL DEMAND MODEL AND UNIFORM DATABASE

Key Topics:

- **Legislative Requirements**
- **Legislative Intent and Application to San Francisco**
- **Technical Approach**
- **Work Programs Items**

1. Legislative Requirements

California Government Code section 65089 (c), requires that each Congestion Management Agency, in consultation with the regional transportation planning agency (MTC in the Bay Area), the county, and local jurisdictions, develop a uniform database on traffic impacts for use in a countywide transportation computer model. The CMA must approve computer models used for county sub-areas, including models used by local jurisdictions for land use impact analysis. All models must be consistent with the modeling methodology and databases used by the regional transportation planning agency.

2. Legislative Intent and Application to San Francisco

One of the most significant issues contributing to the enactment of congestion management legislation is the difficulty of determining responsibility for transportation system impacts when they result from land use decisions taken by several local jurisdictions, or when the impacts are felt across local jurisdictional boundaries.

The intent of the requirement for travel demand models was to identify a technical tool that could address these issues from the perspective of a uniform technical basis for analysis, and provide answers which although not explicitly stated in the legislation, would lead to inter-jurisdictional agreements involving the assessment of mitigation fees to adjust the transportation system's capacity to absorb development.

As a unified City and County, San Francisco does not have to contend with the issues of estimating transportation impacts across city boundaries, although inter-county impacts must still be considered. However, the development of a method for travel demand forecasting for San Francisco presents a different set of challenges, of a technical nature, because of the difficulties inherent in accurately forecasting travel by modes other than the private automobile, (e.g. transit and pedestrian trips). The Authority has developed a travel demand forecasting model to meet these challenges. A consultant team led by Cambridge Systematics developed the model, which was operationally complete in the spring of 2001. In addition to the model, the Authority will continue to use its Geographic Information System (GIS) database (the Transportation Analysis Database or TAD) as an alternative travel analysis tool for appropriate CMP purposes.

It should be noted that the model is significantly integrated with the Authority's GIS tool, the TAD. The GIS is ideally suited for the graphic display of model outputs. Together, the TAD and the San Francisco Travel Demand Forecasting Model can be very effective in sketch planning or policy-level travel demand and performance forecasting exercises of the kind typically associated with long-range planning efforts. Different from more conventional models, however, the Authority's integrated model and GIS allow us to display data using highly effective graphics and maps so that the results of modeling are readily understandable to Board members and citizens.

The following section provides an overview of the new San Francisco Travel Demand Forecasting Model (San Francisco Model) and the TAD.

3. Technical Approach

3.1 The San Francisco Travel Demand Forecasting Model

The San Francisco Travel Demand Forecasting Model (San Francisco Model) is a computer-based tool that can be used to assess the impacts of land use, socioeconomic, and transportation system changes on the performance of the transportation system. The San Francisco Model was developed to reflect San Francisco's unique transportation system and unique socioeconomic and land use characteristics. It uses San Francisco residents' observed travel patterns, detailed representations of San Francisco's transportation system, population and employment characteristics, and transit line boardings during specific time periods, roadway volumes, and the number of vehicles available to San Francisco households to produce measures relevant to transportation and land use planning. Developing future year transportation, land use, and socioeconomic inputs allows the model to be used to forecast future travel demand.

ACTIVITY-BASED MICRO-SIMULATION

The San Francisco Model incorporates a state of the art approach to forecasting travel demand. This activity-based micro simulation model is more sensitive than traditional four-step models to a broader array of conditions that influence travelers' choices.

One of the fundamental differences between the San Francisco Model and traditional models is that it is *tour*-based not *trip*-based. A tour is a sequence of trips made by an individual that begins and ends at home without any intermediate stops at home whereas a trip is a single movement from an origin to a destination. Furthermore, the Authority's model predicts tours for each individual household member over five years old in San Francisco, rather than trips for each household, as in most traditional travel demand models. Tour-based models do not require data beyond what is needed to develop a four-step travel model system. However, the tour-based methodology allows the model to:

- deal more realistically and accurately with trip chaining issues and interrelationships between individual travel made over the entire day;
- predict travel for individuals instead of households; separate travel into mandatory and discretionary tours; and
- provide a more detailed and accurate estimate of volumes that can support micro-simulation models.

Importantly, the tour-based methodology also allows decision-makers to understand not just the changes in the magnitude and direction of trip making associated with a transportation or land use change, but also which San Francisco residents are most directly affected by that change. The ability to perform this equity analysis is a key advancement over traditional four-step models. Activity-based models can also account more reliably for the complexities involved in multi-mode trip making. The San Francisco Model was developed to address tradeoffs for modes for the full tour, as well as the tradeoffs for modal options of trips within a tour.

SPECIFIC MODEL USES

The San Francisco Model has provided the Authority with detailed forecasts to support a number of specific planning applications. The primary applications include the Doyle Drive Environmental & Design Study, the Countywide Transportation Plan, the Authority's Strategic Analysis Reports (SARs), policy analyses, mobility assessments, Muni's transit service planning, and environmental analyses.

MODEL DEVELOPMENT INPUTS

The key inputs required to develop and apply a travel demand forecasting model include information on household and individual travel behavior (obtained in a household travel survey), representations of the pedestrian, transit, and roadway networks, and spatial representations of employment and residential characteristics. In the San Francisco Model, most of the model components were estimated (the process of establishing the relationship between various relevant inputs) using household travel data collected by the Metropolitan Transportation Commission (MTC) for San Francisco residents only. In addition to the household travel survey, a stated preference survey was undertaken to collect preference data on transit reliability, crowding and personal security and auto parking availability and cost.

The model is applied as a windowed model, which combines trip making from the entire Bay Area (derived from the MTC's BAYCAST trip tables) with the travel demand from San Francisco residents produced by the activity-based model. The San Francisco Model provides the inputs to develop a detailed window of San Francisco's residents and visitors' trip making behavior within the MTC network and model structure. All trips made by San Francisco residents within San Francisco are estimated from the activity-based models. All trips between zones outside San Francisco and between one zone inside and one zone outside San Francisco are taken directly from the MTC model and are applied to the San Francisco model network.

Note that while the model system is referred to as the "San Francisco Model," it is, in fact, a series of component models that operate in a coordinated fashion, each with its own unique purpose. The following paragraphs provide brief overviews of the model inputs and components. Figure 1 illustrates how the model components are structured to produce travel demand forecasts.

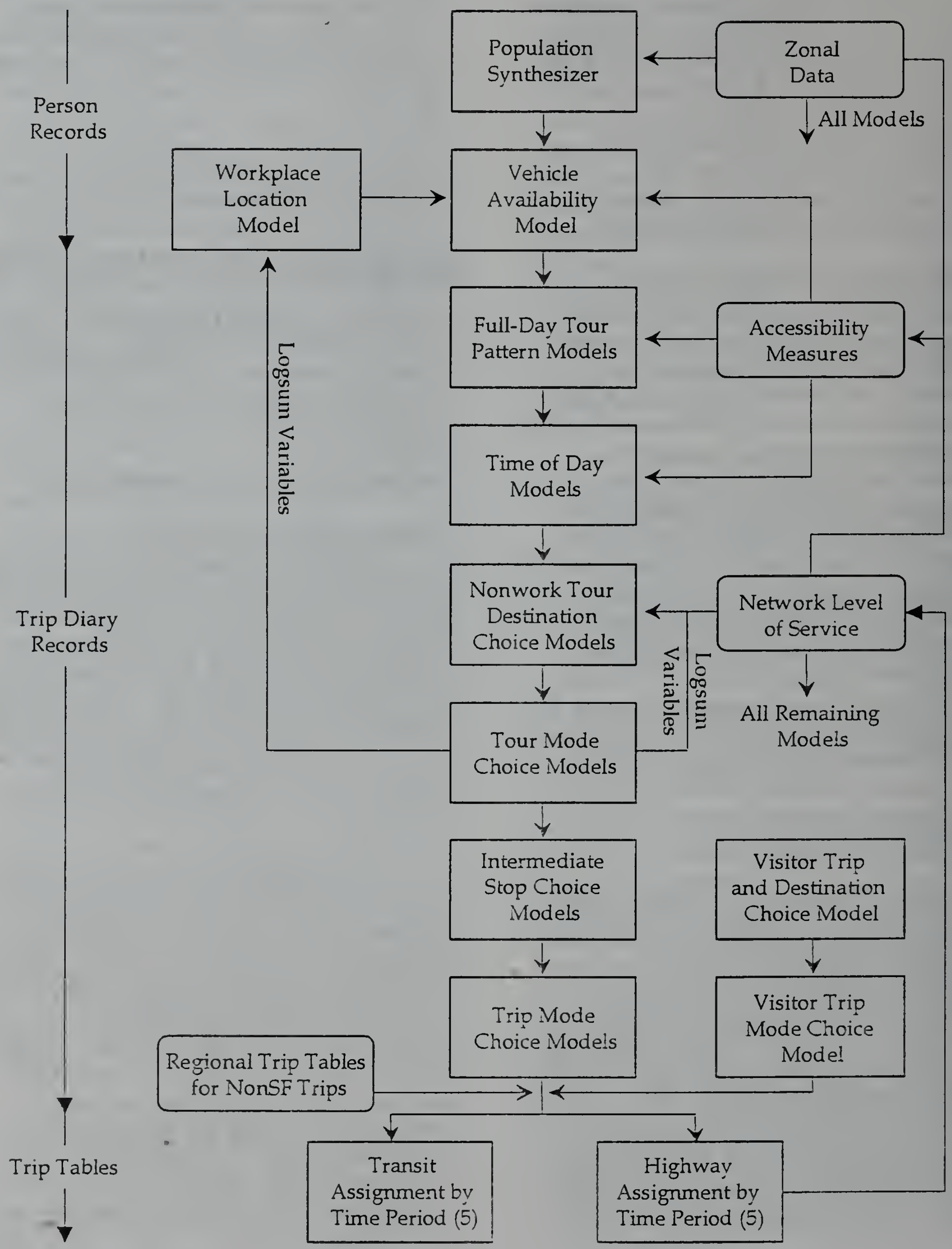
MODEL INPUT AND COMPONENTS

Zonal System And Networks

The model uses a zone system much like the United States Census Bureau's block groups to maintain land use and socioeconomic inputs. There are 766 travel analysis zones (TAZ) within San Francisco County, ranging in size from a single block in the dense urban core, to groups of six to ten blocks in less densely developed residential area on the City's west side.

The Authority worked with the San Francisco Planning Department, the Port of San Francisco, and the San Francisco Redevelopment Agency to develop detailed population and employment inputs. The San Francisco Planning Department provided a current parcel-level residential and employment database, inventories of new development projects under construction, approved, and under review, as well as information on development potential for major area plans. In addition, the Association of Bay Area Governments' *Projections 2000* forecasts provided control

FIGURE 1 San Francisco model components.



totals for countywide forecasts of population and employment. Outside of San Francisco, the San Francisco Model zone system is the same as the MTC zone system with a minor modification in zone numbering. Overall the model has approximately 1640 zones.

The San Francisco Model transportation networks are very detailed. Within San Francisco, the network is the City base map developed by the San Francisco Department of Public Works. It is highly spatially accurate and it includes every street segment within the City. For external counties, the San Francisco Model's roadway network is the MTC regional model highway network. All local and regional transit route alignments and all stop locations are coded in the San Francisco Model's transit networks, and all City streets are part of the model's pedestrian network. Outside San Francisco, the MTC regional model transit network is used to represent the pertinent transit services.

Zonal Inputs

Additional zone-level model inputs were developed to help refine the model to reflect San Francisco conditions. One key set of inputs developed by the Authority to support the model is a set of Pedestrian Environment Factors. These factors provide a qualitative assessment of the pedestrian-friendliness of different areas of the City. In addition, estimates of on-street and off-street parking supplies and costs were developed to help understand how this factor affects San Francisco residents' decision-making.

Population Synthesis

Prior to running the remainder of the San Francisco Model, it is necessary to create a synthesized population of San Francisco residents. As described earlier, the San Francisco Model is an activity-based micro simulation model. This means that the model works at the level of the individual decision-maker – each San Francisco resident. It is therefore necessary to create a representation of each decision-maker for the other models to work with. TAZ-level totals of households, population, and employed residents, as well as census-based distributions of household configuration, age, and income-level serve as inputs to the population synthesis model.

The model samples the Census Public Use Microdata Sample (PUMS) (i.e. long form respondents) household records, and then assigns these to the TAZ, based on the control totals and marginal distributions. The result is a file with one record for each decision-maker. It matches all control totals and distributions when aggregated to the TAZ-level.

Vehicle Availability

The vehicle availability model predicts the vehicles available in each household for each San Francisco resident. The model estimates the probabilities of having zero, one, two, or three or more vehicles available. The San Francisco Model can account for tradeoffs for auto ownership based on the employment location of the primary worker in the household. This is a significant factor for auto ownership in a transit-rich environment such as San Francisco. According to the most recent Census, San Francisco has the second highest percentage of transit usage in the U.S. and the third highest percentage of other non-single occupancy vehicle modes for travel to and from work.

The vehicle availability model was validated primarily on two key variables, number of workers per household and super district[1], using the 1990 Census as the primary source of observed data. A second validation test was used to evaluate the total number of vehicles estimated by the vehicle availability model compared to Department of Motor Vehicle (DMV)

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[1] Superdistrict is a geographic area defined by MTC. San Francisco is divided into four superdistricts.

estimates of auto registrations in San Francisco.

Full Day Pattern Model

The main feature of the full day pattern approach is that it simultaneously predicts the main components of all of a person's travel across the day. Predicting tours (a sequence of trips made by an individual that begin and end at home without any intermediate stops at home) rather than trips is a significant improvement over traditional trip generation procedures because of the relationships between trips on any tour. Figure 2 illustrates the difference between trips (as estimated in the traditional four-step process) and tours.

Several models are used to predict the full day pattern. The **Primary Tour Generation Models** predict whether each individual will make either no tour on a typical weekday or will make a primary tour for one of the following purposes: work, school or other. The individual's primary tour is defined as the longest tour in elapsed time made with a stop at work, school or for other purposes. All of these tours are home-based. Tours that start and end at work will be considered as a fourth tour type. **Number of Stops on Primary Tours Models** predict the number of intermediate stops on each primary tour: none, one or more on the outbound portion only, one or more on the inbound portion only, or one or more on both portions.

Secondary Tour Generation Models predict the number of secondary tours (none, one, two, three, or four or more) each individual will make. These secondary tours are the fifth type of tour. **Number of Stops on Secondary Tours Models** predict the number of intermediate stops on each secondary tour, with the same options as for primary tours.

These models predict the frequency of the following five types of tours: 1) home-based work primary tours; 2) home-based education primary tours; 3) home-based other primary tours; 4) work-based sub-tours; and 5) home-based secondary tours.

By using tours as a key unit of travel, we capture the interdependence of different activities in a trip chain. This provides a better understanding of non-home-based trips, especially in the case of the work-based sub-tours that represent a significant proportion of non-home-based travel.

The full-day pattern tour models were validated by converting tours to trips and comparing these to the 1996 MTC Survey, expanded to match the 1998 population. The MTC survey trips were summarized as only those weekday trips in the survey that had an origin and destination within San Francisco County.

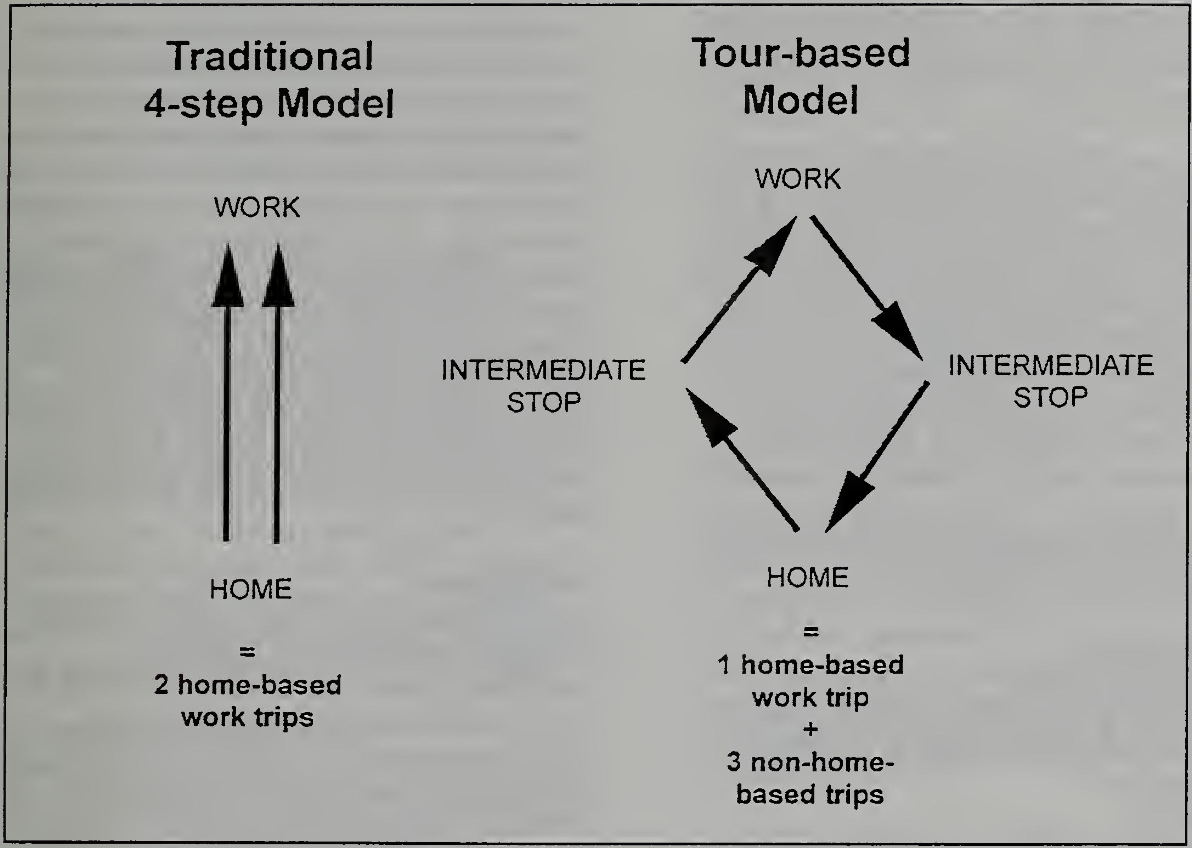
Time Of Day Models

The time-of-day model predicts the period when the traveler leaves home to begin the primary tour simultaneously with the period when the traveler leaves the primary destination to return home. It also predicts the time period of any intermediate stops. The periods used in the San Francisco Model are defined as:

- Early (3:00 AM to 5:59 AM)
- AM peak (6:00 AM to 8:59 AM)
- Midday (9:00 AM to 3:29 PM)
- PM peak (3:30 PM to 6:29 PM)
- Late (6:30 PM to 2:59 AM)

Activity-based models can account for tradeoffs between trip chaining and time of day by evaluating time of day decisions at the tour level rather than the trip level. Pricing policies (such as parking or toll policies) can be tested more accurately by including these tradeoffs between the need to travel for purposes that are time-dependent (such as day care or work) and the desire to avoid peak period pricing. Activity-based models can also account more reliably for the complexities involved in multi-mode trip making.

Figure 2. Trip Definitions: 4-step model vs. tour-based model



Destination Choice Models
Given that the full day activity model has predicted that a traveler makes a tour with a primary destination as well as potentially some number of intermediate stops, the destination choice models select the likely destinations for these trips. The San Francisco Model includes two types of destination choice models.

The **Primary Tour Destination Models** predict the destination of the workplace or school or the most important destination of a non-work tour (i.e. if the resident is going to work, where would the jobsite likely be located?). The **Intermediate Stop Location Models** predict the location of intermediate stops for tours with stops on the way to and/or from the primary destination, where those stops are conditional on where the primary destination is located (i.e. if the resident makes an intermediate stop on the way to work, where is this likely to be?).

The Destination Choice Models were validated against the 1990 MTC survey data for primary destinations by purpose and trip length frequency distributions

Mode Choice Models
After the Full Day Pattern Models and the Destination Choice Models have predicted the number, timing, and destination of trips, the Mode Choice Models predict the mode used by the traveler to reach their destination. Mode refers to the type of transportation, such as walking, bicycling, riding transit (such as light rail or bus), driving alone, or sharing a ride. The San Francisco mode choice models differ from traditional trip-based mode choice models in

that there are two distinct sets of mode choice models. The Tour Mode Choice Model determines the primary mode for the tour, while the Trip Mode Choice Models determine the mode for each individual trip made on that tour, based on the mode chosen for the tour.

An analysis of trips by mode revealed the significant percentage of transit trips and non-motorized (walk and bike) trips made by San Francisco residents. It also showed that a number of transit trips are made by using several transit modes; i.e., local bus access to BART. San Francisco can be considered a transit-rich environment, where most residents can walk to transit, and a limited supply of parking is available with a high cost. Based on this analysis, a detailed representation of available modes was developed, including:

- Muni Metro
- Muni local bus
- Regional "premium" transit (Golden Gate Transit, AC Transit, SamTrans, Caltrain)
- BART
- Walk
- Bike
- Drive Alone
- Shared Ride 2
- Shared Ride 3+

The mode choice models were validated against the MTC household travel surveys and existing modal count information.

Visitor Models
Given San Francisco's popularity as a tourist destination, trips made by visitors from beyond the San Francisco Bay Area had to be included in the San Francisco Model. A series of models were estimated to predict the visitor trips by mode for San Francisco tourist destinations. These models were not based on MTC's household travel survey of Bay Area residents, but rather were estimated using San Francisco Visitor & Convention Bureau data.

The visitor models are significantly less complex than the San Francisco resident models. They estimate the number of visitors to 29 key visitor destinations for each of three modes. The destinations include among others, Alcatraz, Golden Gate Park, North Beach, Union Square, and a cable car ride. While these destinations were estimated from San Francisco-specific data, the structure and coefficients of the mode choice models were borrowed from the Honolulu model development effort. These tourist markets are somewhat similar and the Honolulu model is one of the only visitor models estimated from visitor survey data.

Assignment
Once the detailed activity patterns of San Francisco residents and visitors is estimated (including the type and timing of trips, destinations, and modes of travel), this travel demand is integrated with MTC's forecasts of travel demand by regional travelers, producing tables of trips by mode of travel from zone to zone by time of day. For example, a matrix may contain the number of transit trips during the AM peak, while another may contain a matrix of drive alone trips in the evening time period. This time period-specific demand is then assigned to the regional roadway and transit networks.

There are two primary components to the assignment process – transit and roadway. Transit assignment uses detailed information from the mode choice models to determine the particular route that a traveler uses. For example, the mode choice models may predict that a traveler uses a bus to get from the Inner Sunset to Civic Center, but it does not predict which bus. The Transit Assignment Model predicts the specific route chosen, and any transfers, based on walking time to the nearest stop, expected wait time, presence of other transit alternatives (such as the multiple routes that serve a significant portion of Van Ness Avenue), fares, in-vehicle travel time, and walk time to the final destination.

Roadway assignment predicts the specific route chosen by travelers based primarily on congested travel times. If a particular route between two points is faster than another, it will attract drivers until the travel time on all routes between two points is equal.

The validation of transit and highway assignments is done separately, using observed volumes of vehicles and passengers on the highway and transit systems, respectively. Assignment validation at the county level was completed using aggregated volumes by corridor (identified by screenlines), type of service (facility type, mode or operator), size (volume group), and time period. Speeds and travel times are also used in highway and transit validations to ensure that these are accurately represented in the models.

FURTHER INFORMATION

More detail about the San Francisco Travel Demand Forecasting Model can be found in the model development documentation, which will be available in early 2002.

3.2 GIS-Based Tool: Transportation Analysis Database

Prior to the development of the San Francisco Model, the Authority relied on a GIS-based database using ArcView software for strategic analysis purposes of the San Francisco CMP. The Transportation Analysis Database (TAD) is capable of storing and relating large numbers of data for many variables that are significant in analyzing travel demand in San Francisco. The TAD contains a highly spatially accurate street basemap, provided by the Department of Public Works. The TAD contains information on many transportation variables that are linked to the street network or other geographic layers such as Census blocks or tracts. For example, it also has files representing all Muni bus stops in the City. Each stop, in turn, is linked to relevant information such as route, scheduled frequency of service, on-time performance, daily ridership, passenger load factors, etc. The TAD also stores land use data, demographic information from ABAG and the Census, congestion management network monitoring results, traffic counts, bicycle network information, signal locations, travel survey data (e.g. from the Citywide Travel Behavior Survey), and information about the status of transportation projects being implemented in the City. These data items provide essential information for travel demand analysis in a dense, built up environment like San Francisco.

Over the past two years the Authority has continued to improve the TAD's analysis capabilities and associated data sources (e.g. tables, databases, etc.). For instance, we are continually updating the transit routes and schedule information to reflect service changes made by the transit operators.

The TAD is also now capable of performing raster-based analysis, facilitating processing of raster datasets such as USGS digital elevation models and supporting the development of "cost-surfaces" analyses.

3.3 Use of the Regional Model

As described in Section 3.1, the San Francisco Travel Demand Forecasting Model is a windowed model. It uses inputs from the regional model in a number of ways. The network and zone system outside San Francisco are taken directly from the MTC model. In addition, all trips that are not made by San Francisco residents or visitors are taken from the MTC trip tables. Finally, trips by San Francisco residents and visitors that begin and/or end outside San Francisco are also taken from the MTC trip tables.

In addition to using information from MTC's model as inputs into the San Francisco Model, the MTC model would still be the most appropriate model for analyzing impacts at a regional level such as trying to analyze the impacts of congestion pricing on all of the toll bridges.

4. Work Program Items – Key Milestones

The Authority will continue to work collaboratively with the Planning Department, Department of Parking and Traffic, Muni, other City agencies, regional transit operators, Caltrans, and MTC to:

- Complete documentation of the model;
- Establish a protocol, roles and responsibilities for the periodic update of the model and its assumptions;
- Develop a methodology to update the model to reflect the most recent land use data 9 (see also Chapter 7);
- Develop a plan for ongoing model improvement based on a critical review of current model capabilities and limitations;
- Refine the model as appropriate for application to alternative investment strategies during development of the long-range countywide transportation plan; and
- Apply the model to determine the impacts of policy and transportation service supply changes on local trip making behavior. (i.e. test Doyle Drive design alternatives).

APPENDICES

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APPENDIX I

MTC Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan

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Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC
Revised: 06/11/99-W
Revised: 05/11/01-POC

ABSTRACT

Resolution No. 3000, Revised

This resolution revises MTC's Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan.

This resolution supercedes Resolution No. 2537

Attachments A and B of this resolution were revised on June 11, 1999 to reflect federal and state legislative changes established through the passage of the Transportation Equity Act of the 21st Century and SB 45, respectively. In addition, the Modeling Checklist has been updated.

Attachments A and B of this resolution were revised on May 11, 2001 to reflect state legislative changes and to reference updated demographic and forecast data.

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC

Re: Congestion Management Program Policy.

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3000

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Sections 66500 et seq; and

WHEREAS, Government Code § 65080 requires each transportation planning agency to prepare a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system; and

WHEREAS, Government Code § 65089 requires a designated local agency in each urbanized county to develop, adopt, and periodically update a congestion management program for the county and its included cities unless a majority of local governments in a county and the county board of supervisors elect to be exempt; and requires that this congestion management program be developed in consultation, among others, with the regional transportation planning agency; and

WHEREAS, Government Code § 65089.2 requires that, for each congestion management program prepared, the regional transportation planning agency must make a finding that each congestion management program is consistent with the regional transportation plan, and upon making that finding shall incorporate the congestion management program into the regional transportation improvement program; and

WHEREAS, Government Code § 65082 requires that adopted congestion management programs be incorporated into the regional transportation improvement program approved by MTC; and

WHEREAS, MTC has adopted a Congestion Management Program Policy (MTC Resolution 2537, Revised) to provide guidance for all the counties and cities within the region in preparing their congestion management programs; and,

WHEREAS, MTC's Congestion Management Program Policy needs to be updated from time to time to provide further guidance, now, therefore, be it

RESOLVED, that MTC adopts the Congestion Management Program Policy, as set forth in Attachments A and B to this resolution, which are incorporated herein by reference; and, be it further

RESOLVED, that the MTC Work Program Committee is delegated the responsibility for approving amendments to Attachments A and B; and, be it further

RESOLVED, that this resolution shall be transmitted to the nine Bay Area Congestion Management Agencies for use in preparing their congestion management programs; and, be it further

RESOLVED, that MTC Resolution No. 2537, Revised is hereby superceded.

METROPOLITAN TRANSPORTATION COMMISSION

____

Jane Baker, Chairwoman

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in Oakland, California, on June 25, 1997.

GUIDANCE FOR CONSISTENCY OF

CONGESTION MANAGEMENT PROGRAMS

WITH THE REGIONAL TRANSPORTATION PLAN

Metropolitan Transportation Commission

May 11, 2001

GUIDANCE FOR CONSISTENCY OF CONGESTION MANAGEMENT PROGRAMS WITH THE REGIONAL TRANSPORTATION PLAN

TABLE OF CONTENTS

I. INTRODUCTION

A. Purpose Of This Guidance

The Congestion Management Program (CMP) statutes establish specific requirements for the content and development process for CMPs, for the relationship between CMPs and the metropolitan planning process, for CMA monitoring and other responsibilities, and for the responsibilities of MTC as the regional transportation agency. CMPs are not required in a county if a majority of local governments and the Board of Supervisors adopt resolutions electing to be exempt from this requirement (AB 2419 (Bowler) Chapter 293, Statutes of 1996). This Guidance is for those counties that prepare a CMP in accordance with state statutes. For counties which opt out of preparing a CMP, MTC will directly work with the appropriate county agencies to establish project priorities for funding.

CMP statutes also specify particular responsibilities involving CMPs for the regional transportation agency, in the Bay Area, MTC. These responsibilities include review of the consistency of the CMPs with the RTP, evaluation of the consistency and compatibility of the CMPs in the Bay Area, and inclusion of the CMP projects in the Regional Transportation Improvement Program (RTIP).

The purpose of this guidance is to focus on the relationship of the CMPs to the regional planning process and MTC's role in determining consistency of CMPs with the Regional Transportation Plan (RTP).

B. Legislative Requirement for Congestion Management Programs

Congestion Management Programs were established as part of a bi-partisan legislative package in 1989, and approved by the voters in 1990. This legislation also increased transportation revenues and changed state transportation planning and programming processes. The specific CMP provisions were originally chartered by the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century AB 471 (Katz); (Chapter 106, Statutes 1989) and AB 471 (Katz) (Chapter 106, Statutes of 1989). They were revised by AB 1791 (Katz) (Chapter 16, Statutes of 1990), AB 3093 (Katz) (Chapter 2.6, Statutes of 1992), AB 1963 (Katz) (Chapter 1146, Statutes of 1994) and AB 2419 (Bowler) (Chapter 293, Statues of 1996), which made CMPs optional.

CMP statutes establish requirements for local jurisdictions to receive certain gas tax subvention funds. Additionally, CMPs play a role in the development of specific project proposals for the Regional Transportation Improvement Program.

C. The Role of CMPs in the Metropolitan Planning Process

CMPs play a role in the countywide and regional transportation planning processes:

- CMPs can identify specific near term projects to implement the longer range vision established in a countywide plan.
- Through CMPs, the transportation investment priorities of the multiple jurisdictions in each county can be addressed in a countywide context.
- CMPs establish a link between local land use decision making and the transportation planning process.
- CMPs are a building block for the federally required Congestion Management System.

II. MTC's ROLE and RESPONSIBILITIES

A. MTC's Responsibilities regarding CMPs

MTC's direct responsibilities under CMP statutes are concentrated in the following provisions:

"The regional agency shall evaluate the consistency between the program (i.e., the CMP) and the regional transportation plans required pursuant to Section 65080. In the case of a multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region. (Section 65089.2 (a))

The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program

from inclusion in the regional transportation improvement program. (Section 65089.2(b))

It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas." Section 65089.2.(d)(1))

B. The Regional Transportation Plan (RTP)

Federal transportation statues require that the Metropolitan Transportation Commission (MTC), in partnership with the State and local agencies, develop and periodically update a long-range Regional Transportation Plan (RTP), and a Transportation Improvement Program (TIP), which implements the RTP by programming federal funds to transportation projects contained in the RTP. The RTP is the principal regional transportation policy and planning document for the region, and covers a 20 year period, as mandated by federal statutes. The CMA may submit project proposals for consideration by MTC in developing future financially constrained RTPs. Legal requirements for the RTP are established by State law (Govt. Code Sec. 66500 et seq., & Sec. 65080) and Federal law, as established in the Transportation Equity Act for the 21st Century (TEA-21) (P.L. 105-178, 6-98) and Metropolitan Planning Regulations (Title 23, U.S.C., Sec. 134 et. Seq.).

Under State law, the three elements of the RTP are:

- The **Policy Element**, which identifies the Commission's goals, policies and objectives.

- The **Financial Element**, which projects the operating and maintenance costs for the existing transportation system, and estimates reasonably assumed revenues for transportation over the next 20 years. Twenty year revenue estimates are developed for each Bay Area county.

- The **Action Element**, which outlines a financially constrained investment strategy for the continued maintenance and operation of the MTS, and defines certain strategic expansions for the system. The region's investment is specified for each county.

Under federal metropolitan planning requirements, the RTP must consider the seven TEA 21 transportation factors, Management Systems, federal and State air quality requirements, and the Americans with Disabilities Act. The enactment of TEA-21 requires the consideration of additional issues and programs, including job access programs and consistency with the Intelligent Transportation Systems (ITS) national architecture. The development of the RTP Guidelines by the Statewide RTP Task Force will clarify the requirements for RTPs as established in recent Federal and State legislation. The RTP elements shall address the following modes of travel: highway, mass transportation, bicycle, pedestrian, goods movement, railroad, maritime, and aviation.

C. Consistency Findings

MTC's findings for the consistency of CMPs focus on five areas:

- Goals and objectives established in the RTP,
- Consistency of the system definition with adjoining counties,
- Consistency with federal and state air quality plans,
- Consistency with the MTC travel demand modeling database and methodologies; and
- RTP financial assumptions.

1) Goals and objectives established in the RTP.

The RTP includes the following goals:

- Improve mobility for persons and freight:
  The ability to move with a reasonable degree of ease and predictability on a Metropolitan Transportation System (MTS) in the Bay Area is key to the region's economy and quality of life. The MTS should be the focus of the many partner agencies who operate it.

- Promote equity for system users:
  Equitable access to the region's transportation system, and the decision-making process that governs it, should be provided for all persons.

- Enhance sensitivity to the environment
  The environmental impact, both short and long-term, of transportation decisions should be fully analyzed and considered, and adverse impacts mitigated whenever possible.

- Support economic vitality of the region
  The relationship between a productive regional economy and the ability of the transportation infrastructure to move individuals, commodities, and information should be recognized and reinforced.

- Support community vitality of the region
  Transportation improvements should be used to help create more livable communities and enhance the Bay Area quality of life.

2) Consistency of the system definition with adjoining counties.

The CMP statutes require that the CMA designate a system of highways and roadways which shall be subject to the CMP requirements. Consistency requires the regional continuity of the CMP designated system for facilities that cross county borders. MTC's consistency review will be guided by those elements of the CMP system that are also part of the Metropolitan Transportation System (MTS), as established in the most recent.RTP.

3) Consistency with pertinent Air Quality Plans, as incorporated in the RTP.

The RTP incorporates Transportation Control Measures (TCMs) contained in the federal and state air quality plans to achieve and maintain the respective standards for ozone and carbon monoxide. The statutes require that the Capital Improvement Program (CIP) of the CMP conform to transportation related vehicle emission air quality mitigation measures. CMPs should promote the region's adopted transportation control measures (TCMs) for the Federal and State Clean Air Plans.

- A list of federal and state TCMs is provided in Table 1 of Attachment B. The list may be updated from time to time to reflect changes in the list of TCMs.

- In particular, TCMs that require local implementation should be identified in the CMP, specifically in the CIP. If needed MTC will indicate TCMs that need to be emphasized to help achieve federal and state air quality standards.

4) Consistency with the MTC Travel Demand Modeling Databases and Methodologies

The agency, (i.e., the CMA) in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a

> ***countywide transportation computer model . . . The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.*** (Section 65089 (c))

MTC desires the development of highly consistent travel demand models, with coordinated regional and subregional models and shared databases, to provide a common foundation for transportation policy and investment analysis.

The Modeling Coordination Working Group of the Bay Area Partnership serves as a forum for sharing data and expertise, and providing peer review for issues involving the models developed by or for the CMAs, MTC, and other parties.

The Modeling Coordination Working Group of the Partnership reports to the Planning and Operations Committee (POC) of the Partnership. The MTC Checklist for Modeling will be used to guide the consistency assessment of CMA models with the MTC model.

The Checklist is included in Attachment B, and addresses:

- Demographic/econometric forecasts
- Pricing assumptions
- Network assumptions
- Auto ownership assumptions
- Trip generation methodology
- Trip distribution methodology
- Mode choice methodology
- Traffic assignment methodologies

5) <u>RTP Financial Requirements and Projections.</u>

Under the federal TEA-21, the actions, programs and projects in the RTP must be financially deliverable within reasonable estimates of public and private resources, as under ISTEA. While CMPs are not required by legislation to be financially constrained, recognition of financial constraints, including the costs for maintaining, rehabilitating, and operating the existing multi-modal system and the status of specific major projects, will strengthen the consistency and linkage between the regional planning process and the CMP.

D. Consistency and Compatibility of the Programs within the Region

The CMP statutes require that, in the case of a multi-county regional transportation agency, that agency shall evaluate the consistency and compatibility of the congestion management programs within the region. Further, it is the Legislature's stated intention that the regional agency (i.e., MTC in the San Francisco Bay Area) resolve inconsistencies and mediate disputes between congestion management programs within a region.

To the extent useful and necessary, MTC will identify differences in methodologies and approaches between the CMPs on such issues as performance measures and land use impacts.

E. Incorporation of the CMP Projects into the RTIP

State transportation statutes require that the MTC, in partnership with the State and local agencies, develop the Regional Transportation Improvement Program (RTIP) on a biennial cycle. The RTIP is the regional proposal for State and federal funding, adopted by MTC and provided to the California Transportation Commission (CTC) for the development of the State Transportation Improvement Program (STIP). In 1997, SB 45 (Statutes 1997, Chapter 622) significantly revised State transportation funding policies, delegating project selection and delivery responsibilities for a major portion of funding to regions and counties. Subsequent changes to state law (AB 2928 – Statutes 2000, Chapter 91) makes the RTIP a five year proposal of specific projects, developed for specific fund sources and programs. The RTIP is required to be consistent with the RTP, which is currently in effect. The RTP is revised periodically.

The CMP statutes establish a direct linkage between CMPs that have been found to be consistent with the RTP, and the RTIP. MTC will review the projects in the CIP for consistency with the RTP. MTC's consistency findings for projects in the CMPs will be limited to those projects that are included in the RTP, and do not extend to other projects that may be included in the CMP. Some projects may be found consistent with a program category in the RTP. MTC, upon finding that the CMP is consistent with the RTP, shall incorporate the program into the RTIP, subject to specific programming and funding requirements. If MTC finds the program inconsistent, it may exclude any project in the program from inclusion in the RTIP. Since the RTIP must be consistent with the RTP, projects that are not consistent with the RTP will not be included in the RTIP. MTC may include certain projects or programs in the RTIP which are not in a CIP, but which are in the RTP. In addition, SB 45 requires projects included in the Interregional Transportation Improvement Program (ITIP) to be consistent with the RTP.

MTC will establish funding targets for specific funds, based upon the fund estimate as adopted by the California Transportation Commission (CTC). Project proposals can only be included in the RTIP within these funding bid targets. MTC will also provide information on other relevant RTIP processes and requirements, including coordination between city, county, and transit districts for project applications, schedule, evaluations and recommendations of project submittals, as appropriate for the RTIP.

III. CMP PREPARATION AND SUBMITTAL TO MTC

A. CMP Preparation

If prepared, the CMP shall be developed by the CMA in consultation with, and with the cooperation of, MTC, transportation providers, local governments, Caltrans, and the BAAQMD, and adopted at a noticed public hearing of the CMA. As established in SB 45, the RTIP is scheduled to be adopted by December 15 of each odd numbered year. If circumstances arise that change this schedule, MTC will work with the CMAs and substitute agencies in determining an appropriate schedule and mechanism to provide input to the RTIP.

B. Regional Coordination

In addition to program development and coordination at the county level, and consistency with the RTP, the compatibility of the CMPs with other Bay Area CMPs would be enhanced through identification of cross county issues in an appropriate forum, such as Partnership and other appropriate policy and technical committees. Discussions would be most beneficial if done prior to final CMA actions on the CMP.

C. Submittal to MTC

To provide adequate review time, draft CMPs should be submitted to MTC in accordance to a schedule MTC will develop to allow sufficient time for incorporation into the RTIP for submittal to the California Transportation Commission. Final CMPs must be adopted prior to final MTC consistency findings.

D. MTC Consistency Findings for CMPs

MTC will evaluate consistency of the CMP every two years with the RTP that is in effect when the CMP is submitted. MTC will evaluate the consistency of draft CMPs when received, based upon the areas specified in this guidance, and will provide staff comments of any significant concerns. MTC can only make final consistency findings on CMPs that have been officially adopted.

Appendix A: Federal and State Transportation Control Measures

Federal TCMs:
For a list and description of current Federal TCMs, see the "Federal Ozone Attainment Plan for the San Francisco Bay Area" as amended and revised, and "Carbon Monoxide Redesignation Request and Maintenance Plan for the San Francisco Bay Area," approved April 26, 1996

State TCMs:
For a list and description of current State TCMs, see "1997 Clean Air Plan for the San Francisco Bay Area," or subsequent revisions as adopted by the Bay Area Air Quality Management District.

Appendix B: MTC Checklist for Modeling Consistency for CMPs

Overall approach
MTC's goal is to establish a regionally consistent model "set" for application by MTC and the CMAs. The Partnership has finalized a report on modeling consistency issues recommending MTC develop and the CMAs incorporate a consistent set of model components on desktop computers (termed BAYCAST). For immediate use for the 2001 CMPs, the study recommended that the current Checklist format be utilized, and proposed specific tolerances. This revised Checklist incorporates the results of testing those specific tolerances, as well as additional analyses.

Checklist
This Checklist guides the CMAs through their model development and consistency review process by providing an inventory of specific products to be developed and submitted to MTC, and by describing standard practices and assumptions to be followed. North Bay counties are not subject to Products 3, 5, 12, and 15, although the assumptions used should be described.

Because of the complexity of the topic, the Checklist may need additional detailed information to explain differences in methodological approach or data. Significant differences will be resolved between MTC and the CMA, taking advantage of the Modeling Coordination Working Group (MCWG). Standard formats for model comparisons will be developed.

Incremental updates
The CMA forecasts must be updated every two years to be consistent with MTC's forecasts. Alternative approaches to fully rerunning the entire model are available, including incremental approaches through the application of factors to demographic inputs or to trip tables. Similarly, the horizon year must be the same as the TIP horizon year, however, interpolation and extrapolation approaches are acceptable, with appropriate attention to network changes. These alternatives to full re-running of the model should be reviewed with MTC.

Defining the MTC model sets
Unless otherwise specified, the MTC model sets referred to below will be defined as those in use on October 1st of the year preceding the CMP update.

Using MTC Data for Key Assumptions

Key "bundles of assumptions" are needed for developing travel forecasts. These include Pricing Assumptions, Demographic Assumptions, Travel Behavior Assumptions, and Highway and Transit Network Assumptions.

A. Discuss the General Approach to Travel Demand Modeling by the CMA

Describe the model, and its relationship to the MTC model. If the model is based on MTC's model, describe any adjustments to model constants, coefficients, k-factor or friction factor re-estimation, market segmentation, and trip purposes.

PRODUCT 1: Description of the above.

B. Demographic/Economic/Land Use Forecasts:

Use exact ABAG Projections '98 for other Bay Area counties, and control totals (within 1 percent) for the county for population, households, jobs and employed residents. CMAs may reallocate growth forecasts within their own county in consultation with cities, MTC and ABAG. The latest set of ABAG's Projections must be used for all new demographic databases developed for baseline travel demand forecasting purposes after August 1 of the year preceding the CMP update. Future year forecasts should address the latest available ABAG Projection series. MTC, in consultation with the MCWG, will develop factors that may be used to achieve consistency with the most recent ABAG demographics. CMAs may also, of course, analyze alternative land use scenarios in addition to these forecasts. If a land use based model is utilized, production and attraction comparisons will be made with the MTC model.

PRODUCT 2: Summary sheet comparing ABAG Projections economic and demographic data (using the most current series) and CMP input data for population, households, jobs and employed residents for the 9 Bay Area counties for the base and forecast years (the year for comparison to the appropriate TIP must be included), and a statement establishing that the differences between the ABAG variables and those of the CMA input file do not exceed 1 percent at the county level for the subject county, and that no differences exist for the other 8 counties for a base case scenario.

C. Pricing Assumptions:

Use MTC's auto operating costs, transit fares, and bridge tolls.

PRODUCT 3: Statements establishing satisfaction of the above.

D. **Network Assumptions:**
Use MTC's regional highway and transit network assumptions for the other Bay Area counties. CMAs should include more detailed network definition relevant to their own county in addition to the regional highway and transit networks. For the CMP horizon year, to be compared with the TIP interim year, regionally significant network changes in the base case scenario shall be limited to the current Transportation Improvement Program (TIP) for projects subject to inclusion in the TIP.

PRODUCT 4: Statement establishing satisfaction of the above.

E. **Auto Ownership Assumptions:**
Use MTC auto ownership models or forecasts, or submit alternative models to MTC for review and comment.

PRODUCT 5: County and district level table(s) showing households by vehicle ownership level (0, 1, 2+ vehicle/household), and autos per household summaries at county and district levels, or autos per worker and total autos by district, and other pertinent auto ownership data if more appropriate. (Note that the term "district" used in these Guidelines may be interpreted as either MTC superdistricts or CMA defined districts.)

F. **Trip Generation:**
Use the BAYCAST person trip generation models for home-based work and non-work, and non-home based trips, or submit alternative models to MTC for review and comment. Results may be adjusted sub-regionally through calibration or modal constant adjustments.

PRODUCTS: 6) County and district level table(s) summarizing trip productions and trip attractions out of the trip generation model. Differences in trip productions and attractions for total person trips and for home based work trips should be no greater than 1% or 10,000 trips, whichever is higher, for comparisons for the subject county, each other county, and overall for the region or study area. For North Bay counties, figures are to be within 10% deviation for daily home based vehicle trips, using conversion factors as appropriate. Base year comparisons should be made with the Census data when available and appropriate.

7) Trip rate analysis, including home-based work trips per employed resident, home-based non-work trips per household, and non-home-based trips per total job.

8) Description of sub-regional adjustment factors, if any.

G. Trip Distribution:

Work trip distribution models must be calibrated to the 1990 Census Journey-to-Work commuter matrices. Trip distribution results must be balanced to productions, and attraction balancing problems should be discussed with MTC.

MTC, in consultation with the MCWG, will develop factors that may be used to achieve consistency with the most recent MTC trip distribution tables.

PRODUCTS: 9) County and district level table(s) showing attraction balancing analysis, i.e., comparison of "modeled" attractions from the trip distribution model to "desired" attractions from the trip generation (trip attraction) models.

10) County-to-county level trip tables. Differences in trip productions and attractions for total person trips and for home based work trips from and to the subject county should be no greater than 5% or 10,000 trips, whichever is higher, for comparisons for the subject county, interactions with each other county, and overall for the regional interaction with the subject county. For rural counties, CMAs should develop appropriate comparisons to MTC's model system, in consultation with MTC, using conversion factors as appropriate. Base year comparisons should be made with the Census data when available and appropriate.

11) District-to-district level trip tables for intra-county trips.

All trip distribution analyses are to be stratified by trip purpose.

H. Mode Choice:

If a logit mode choice model is to be used, MTC's BAYCAST models should be used, or submit alternative methodology for MTC review.

PRODUCTS: 12) County-to-county and district-to-district (intra-county) level table(s) showing mode choice forecasts by trip purpose and travel mode. There is no need to document the county-to-county mode choice forecasts for trips that do not start, end, or pass through the particular county of interest.

13) Vehicle trip tables, county-to-county and intra-county district-to-district, stratified by trip purpose.

Differences in trips for drive alone for total daily person trips and for home based work trips from and to the subject county should be no greater than 10% or 10,000 trips, whichever is higher, for each county interaction, and overall for the region/study area. For North Bay counties, conversion factors may be needed.

Differences in trips for transit, shared ride 3+, and shared ride 2 for total person trips and for home based work trips from and to the subject county - should be no greater than 10,000 trips for each county interaction, and 10% overall for the region/study area.

Base year comparisons should be made with the Census data when available and appropriate.

I. **Traffic Assignment**

Use capacity restrained assignment for peak hour or peak period traffic assignments, or submit alternative methodology for MTC review.

PRODUCTS: 14) Description of trip assignment methodology for daily and/or peak hour (period) assignment for both transit and highway.

15) Describe peaking factors and vehicle occupancy assumptions utilized.

Alternatively, CMAs may elect to utilize MTC zone to zone person/vehicle trip tables, adding network and zonal details within the county as appropriate, and then re-run the assignment. In this case, only Products 14 and 15 are applicable if vehicle trip tables are utilized, and additionally Products 12 and 13 if person trip tables are utilized.

CMAs that used MTC zone-to-zone person/vehicle trip tables for the 1999 CMP model may use factors developed by MTC to establish consistent trip tables for the 2001 CMP models, and to interpolate to the TIP horizon year.

APPENDIX II

California Government Codes Referencing Congestion Management Programs

CMP Legislation as Amended in Assembly Bills 1963 & 2419
Senate Bill 45 - STIP Reform Bill (Kopp)

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CMP Legislation
As Amended In Assembly Bills 1963 & 2419

The people of the State of California do enact as follows:

65088.1. As used in this chapter the following terms have the following meanings:

(a) Unless the context requires otherwise, "regional agency" means the agency responsible for preparation of the regional transportation improvement program.

(b) Unless the context requires otherwise, "agency" means the agency responsible for the preparation and adoption of the congestion management program.

(c) "Commission" means the California Transportation Commission.

(d) "Department" means the Department of Transportation.

(e) "Local jurisdiction" means a city, a county, or a city and county.

(f) "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. "Parking subsidy" means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space.

A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program.

(g) "Urbanized area" has the same meaning as is defined in the 1990 federal census for urbanized areas of more than 50,000 population.

(h) "Interregional travel" means any trips that originate outside the boundary of the agency. A "trip" means a one-direction vehicle movement. The origin of any trip is the starting point of that trip. A roundtrip consists of two individual trips.

(i) "Multimodal" means the utilization of all available modes of travel that enhance the movement of people and goods, including, but not limited to, highway, transit, nonmotorized and demand management strategies including, but not limited to, telecommuting. The availability and practicality of specific multimodal systems, projects, and strategies varies by county and region in accordance with the size and complexity of different urbanized areas.

(j) "Level of service standard" is a threshold that defines a deficiency on the congestion management program highway and road system which requires the preparation of a deficiency plan. It is the intent of the Legislature that the agency shall use all elements of the program to implement strategies and actions that avoid the creation of deficiencies and to improve multimodal mobility.

(k) "Performance measure" is an analytical planning tool that is used to quantitatively evaluate transportation improvements and to assist in determining effective implementation actions, considering all modes and strategies. Use of a performance measure as part of the program does not trigger the requirement for the preparation of deficiency plans.

65088.3. This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of superivsors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program.

65088.5 Congestion management programs, if prepared by county transportation commissions and transportation authorities created pursuant to Division 12 (commencing with Section 130000) of the Public Utilities Code, shall be used by the regional transportation planning agency to meet federal requirements for a congestion managment system, and shall be incorporated into the congestion management system.

65089. (a) A congestion management program shall be developed, adopted, and updated biennially consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the department, and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by the resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county.

(b) The program shall contain all of the following elements:

(1) (A) Traffic level of service standards established for a system of highways and roadways designated by the agency. The highway and roadway system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system. Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency which is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department shall make this determination instead if either (i) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.

(B) In no case shall the LOS standards established be below the level of service E or the current level, whichever is farthest from level of service A. When the level of service on a segment or at an intersection fails to attain the established level of service standard, a deficiency plan shall be adopted pursuant to Section 65089.4.

(2) A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, and measures established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the capital improvement program required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4, and the land use analysis program required pursuant to paragraph (4).

(3) (A) A travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.

(4) A program to analyze the impacts of land use

decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures described in paragraph (2). In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions which are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication.

(5) A seven-year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emission air quality mitigation measures, and include any project that will increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given for maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alternation. The capital improvement program may also include safety , maintenance, and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities.

(c) The agency, in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.

(d) (1) The city or county in which a commercial development will implement a parking cash-out program which is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.

(2) At the request of an existing commercial development that has implemented a parking cash-out program, the city or county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.

(e) Pursuant to the federal Intermodal Surface Transportation Efficiency Act of 1991 and regulations adopted pursuant to the act, the department shall submit a request to the Federal Highway Administration Division Administrator to accept the congestion management program in lieu of development of a new congestion management system otherwise required by the act.

65089.1 (a) For purposes of this section, "plan: means a trip reduction plan or a related or similar proposal submitted by an employer to a local public agency for adoption of approval that is designed to facilitate employee ridesharing, the use of public transit, and other measns of travel that do not employ a single-occupant vehicle.

(b) An agnecy may require an employer to provide rideshare data bases; an emergency ride program; a preferential parking program; a transportation information program; a parking cash-out program, as defined in subdivision (f) of Section 65088.1; a public transit subsidy in an amount to be determined by he empoyler; bicycle parking areas; and other noncash value programs w""""hich encourage or faciliate the use of alternatives to driving alone. An employer may offer, but no agency shall require an employer to offer, cash, prizes, or items with cash value to employees to encourage participation in a trip reduction program as a condition of approving a plan.

(c) Employers shall provide employees reasonable notice of the content of a proposed plan and shall provide the employees an opportunity to comment prior to submittal of the plan to the agency for adoption.

(d) Each agency shall modify existing programs to conform to this section not later than June 30, 1995. Any plan adopted by an agency prior to January 1, 1994, shall remain in effect until adoption by the agency of a modified plan pursuant to this section.

(e) Employers may include disincentives in their plans that do not create a widespread and substantial disproportionate impact on ethnic or racial minorities, women, or low-income or disabled employees.

(f) This section shall not be interpredted to relieve any employer of the responsibility to prepare a plan that conforms with trip reduction goals specified in Division 26 (commencing with Section 39000) of the Health and Safety Code, or the Clean Air Act (42 U.S.C. Sec. 7401 et seq.).

(g) This section only applies to agencies and employers within the South Coast Air Quality Managment District.

65089.2. (a) Congestion management programs shall be submitted to the regional agency. The regional agency shall evaluate the consistency between the program and the regional transportation plans required pursuant to Section 65080. In the case of multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.

(b) The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.

(c) (1) The regional agency shall not program any surface transportation program funds and congestion mitigation and air quality funds pursuant to Section 182.6 and 182.7 of the Streets and Highways Code in a county unless a congestion management program has been adopted by December 31, 1992, as required pursuant to Section 65089. No surface transportation program funds or congestion mitigation and air quality funds shall be programmed for a project in a local jurisdiction that has been found to be in nonconformance with a congestion management program pursuant to Section 65089.5 unless the agency finds that the project is of regional significance.

(2) Notwithstanding any other provision of law, upon the designation of an urbanized area, pursuant to the 1990 federal census or a subsequent federal census, within a county which previously did not include an urbanized area, a congestion management program as required pursuant to Section 65089 shall be adopted within a period of 18 months after designation by the Governor.

(d) (1) It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas.

(2) It is the further intent of the Legislature that disputes which may arise between regional agencies, or agencies which are not within the boundaries of a multicounty regional transportation planning agency, should be mediated and resolved by the Secretary of the Business, Housing and Transportation Agency, or an employee of that agency designated by that secretary, in consultation with the air pollution control district or air quality management district within whose boundaries the regional agency or agencies are located.

(e) At the request of the agency, a local jurisdiction that owns, or is responsible for operation of, a trip-generating facility in another county shall participate in the congestion managment program of the county where the facility is located. If a dispute arises involving a local jurisdiction, the agency may request the regional agency to mediate the dispute through procedures pursuant to subdivision (d) of Section 65089.2. Failure to resolve the dispute does not invalidate the congestion management program.

65089.3. The agency shall monitor the implementation of all elements of the congestion management program. The department is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity.

The agency may also assign data collection and analysis responsibilities to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. The agency shall consult with the department and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:

(a) Consistency with levels of service standards, except as provided in Section 65089.4.

(b) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.

(c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained on portions of the designated system.

65089.4. (a) A local jurisdiction shall prepare a deficiency plan when highway or roadway level of service standards are not maintained on segments or intersections of the designated system. The deficiency plan shall be adopted by the city or county at a noticed public hearing.

(b) The agency shall calculate the impacts subject to exclusion pursuant to subdivision (f) of this section, after consultation with the regional agency, the department, and the local air quality management district or air pollution control district. If the calculated traffic level of service following exclusion of these impacts is consistent with the level of service standard, the agency shall make a finding at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.

(c) The agency shall be responsible for preparing and adopting procedures for local deficiency plan development implementation responsibilities, consistent with the requirements of this section. The deficiency plan shall included all of the following:

(1) An analysis of the causes of the deficiency. The analysis shall include the following:

(A) Identification of the cause of the deficiency.

(B) Identification of the impacts of those local jurisdictions within the jurisdiction of the agency that contribute to the deficiency. These impacts shall be identified only if the calculated traffic level of service following exclusion of impacts pursuant to subdivision (f) indicates that the level of service standard has not been maintained, and shall be limited to impacts not subject to exclusion.

(2) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.

(3) A list of improvements, programs, or actions, and estimates of costs, that will (A) measurably improve multimodal performance, using measures defined in paragraphs (1) and (2) of subdivision (b) of Section 65089, and (B) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved non motorized transportation facilities, high occupancy vehicle facilities, parking cash-out programs, and transportation control measures. The air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions which meet the scope of this paragraph. If an improvement, program or action is on the approved list and has not yet been fully implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district or air pollution control district.

(4) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000), that shall be implemented, consisting of improvements identified in paragraph (2), or improvements, programs, or actions identified in paragraph (3), that are found by the agency to be in the interest of the public health, safety and welfare. The action plan shall include a specific implementation schedule. The action plan shall include implementation strategies for those jurisdictions that have contributed to the cause of the deficiency in accordance with the agency's deficiency plan procedures. The action plan need not mitigate the impacts of any exclusion identified in subdivision (f). Action plan strategies shall identify the most effective implementation strategies for improving current and future system performance.

(d) A local jurisdiction shall forward its adopted deficiency plan to the agency within 12 months of the identification of a deficiency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following the hearing, the agency shall either accept or reject the deficiency plan in its entirety, but the agency may not modify the deficiency plan. If the agency rejects the plan, it shall notify the local jurisdiction of the reasons for that rejection, and the local jurisdiction shall submit a revised plan within 90 days addressing the agency's concerns. Failure of a local jurisdiction to comply with the schedule and requirements of this section shall be considered to be nonconformance for the purposes of Section 65089.5.

(e) The agency shall incorporate into its deficiency plan procedures, a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the agency.

(1) If, according to the agency's methodology, it is determined that more than one local jurisdiction is responsible for causing a deficient segment or intersection, all responsible local jurisdictions shall participate in the development of a deficiency plan to be adopted by all participating local jurisdictions.

(2) The local jurisdiction in which the deficiency occurs shall have lead responsibility for developing the deficiency plan and for coordinating with other impacting local jurisdictions. If a local jurisdiction responsible for participating

in a multi-jurisdictional deficiency plan does not adopt the deficiency plan in accordance with the schedule and requirements of paragraph (a) of this section, that jurisdiction shall be considered in nonconformance with the program for purposes of Section 65089.5.

(3) The agency shall establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities of this section.

(f) The analysis of the cause of the deficiency prepared pursuant to paragraph (1) of subdivision (c) shall exclude the following:

(1) Interregional travel.

(2) Construction, rehabilitation, or maintenance of facilities that impact the system.

(3) Freeway ramp metering.

(4) Traffic signal coordination by the state or multijurisdictional agencies.

(5) Traffic generated by the provision of low and very low income housing.

(6)(A) Traffic generated by high density residential development located within one-fourth of a mile of a fixed rail passenger station.

(B) Traffic generated by any mixed use development located within one-fourth of a mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed use development is used for high density residential housing, as determined by the agency.

(g) For the purposes of this section, the following terms have the following meanings:

(1) "High density" means residential density development which contains a minimum of 24 dwelling units per acre and a minimum density per acre which is equal to or greater than 120 percent of the maximum residential density allowed under the local general plan and zoning ordinance. A project providing a minimum of 75 dwelling units per acre shall automatically be considered high density.

(2) "Mixed use development" means development which integrates compatible commercial or retail uses, or both, with residential uses, and which, due to the proximity of job locations, shopping opportunities, and residences, will discourage new trip generation.

65089.5. (a) If, pursuant to the monitoring provided for in Section 65089.3, the agency determines, following a noticed public hearing, that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.

(b)(1) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code.

(2) If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.

(3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.

(c) The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes.

65089.6. Failure to complete or implement a congestion management program shall not give rise to a cause of action against a city or county for failing to conform with its general plan, unless the city or county incorporates the congestion management program into the circulation element of its general plan.

65089.7. A proposed development specified in a development agreement entered into prior to July 10, 1989, shall not be subject to any action taken to comply with this chapter, except actions required to be taken with respect to the trip reduction and travel demand element of a congestion management program pursuant to paragraph (3) of subdivision (b) of Section 65089.

65089.9. The study steering committee established pursuant to Section 6 of Chapter 444 of the Statutes of 1992 may designate at least two congestion management agencies to participate in a demonstration study comparing multimodal performance standards to highway level of service standards. The department shall make available, from existing resources, fifty thousand dollars ($50,000) from the Transportation Planning and Development Account in the State Transportation Fund to fund each of the demonstration projects. The designated agencies shall submit a report to the Legislature not later than June 30, 1997, regarding the findings of each demonstration project.

65089.10. Any congestion management agency that is located in the Bay Area Air Quality Management District and recieved funds pursuant to Section 44241 of the Health and Safety Code for the purpose of implementing paragraph (3) of subdivision (b) of Section 65089 shall ensure that those funds are expended as part of an overall program for improving air quality and for the purposes of this chapter.

APPENDIX III

Congestion Management Program Roadway Network Segmentation

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CMP NETWORK - ARTERIALS

Rationale for Segmentation

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
1st Street					
Market-Harrison					
3rd Street					
Jamestown-Evans *		x	x		
Evans-China Basin		x			
China Basin-Market		x		x	
4th Street					
Market-Harrison					x
Harrison-3rd St					x
5th Street					
Market-Brannan					
6th Street					
Market-Brannan					
7th Street					
Brannan-Market					
8th Street					
Market-Bryant					
9th Street					
Brannan-Market					
10th Street					
Market-Brannan					
19th Avenue/Park Presidio Blvd					
U.S.101-Lake		x			
Lake-Lincoln		x	x		
Lincoln-Sloat			x		
Sloat-J.Serra			x		
Alemany Blvd					
C & C limit-Lyell *		x			
Lyell-Bayshore		x			
Army Street					
Guerrero-Kansas *	x	x			x
Kansas-Bryant *					x
Bryant-3rd St.					x
Bay Street					
Van Ness-Embarcadero					
Bayshore Blvd					
Army-Industrial *			x		x
Industrial- C & C limit			x		x
Beale/Davis					
Clay-Mission					
Brannan Street					
Division-9th St					
6th St-5th St					
Broadway					
Gough-Larkin	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Larkin-Powell (Tunnel)	x	x			
Powell-Montgomery		x			
Montgomery-Embarcadero			x		
Brotherhood Way					
J.Serra-Alemany					
Bryant Street					
Division-4th St					x
4th St-Embarcadero					x
Bush Street					
Masonic-Gough	x				
Gough-Market *	x		x		
Castro/Divisadero Street					
Pine-Geary			x		
Geary-14th St	x		x		
14th St-Market	x		x		
Clay Street					
Kearny-Davis					
Columbus Avenue					
North Point-Greenwich				x	
Greenwich-Montgomery			x		
Drumm Street					
Washington-Market					
Duboce Avenue					
Market-Mission *	x				
Mission-Potrero	x				
The Embarcadero					
Townsend-North Point					
Evans Avenue					
Army-3rd St *					
Fell Street					
Gough-Laguna					x
Laguna-Stanyan					x
Franklin Street					
Market-Pine			x		
Pine-Lombard	x				
Fremont Street					
Harrison-Market *					
Fulton Street					
Masonic-Arguello		x	x		
Arguello-Park Presidio *		x	x		
Geary Blvd					
Market-Gough	x	x			
Gough-Arguello		x			
Arguello-25th Ave			x		
25th Ave-Great Hwy	x		x		

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Geneva Avenue					
Phelan-Cayuga	x				
Cayuga-Paris	x				
Paris-Santos	x				
Golden Gate Avenue					
Masonic-Franklin	x	x	x		
Franklin-Market	x	x	x		
Gough Street					
Pine-Geary			x		
Geary-Golden Gate *	x				
Golden Gate-Market	x				
San Jose Avenue/Guerrero					
Army-29th St	x	x			
29th St-Monterey Blvd					x
Harrison Street					
Embarcadero-1st St *					x
1st St-4th St					x
4th St-8th St					x
8th St-13th St					x
Hayes Street					
Market-Gough					
Howard Street					
Embarcadero-S.Van Ness					
Junipero Serra Blvd					
Sloat-19th Ave *		x	x		
19th Ave-Brotherhood Way			x		
Brotherhood-C & C limit			x		
Kearny Street					
Market-Columbus					
King Street					
6th St-Embarcadero					
Lincoln Blvd/Kezar Drive					
19th Ave-5th Ave	x				
5th Ave-Stanyan	x				
Lombard Street					
Francisco-Van Ness *					
Main Street					
Mission-Market					
Market/Portola					
Sloat-Santa Clara	x				
Santa Clara-Clipper *	Grade Change				
Clipper-Castro	x				
Castro-Guerrero	x				
Guerrero-Van Ness			x	x	
Van Ness-Drumm	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Masonic Avenue					
Pine-Geary			x		
Geary-Page			x		
Mission/Otis					
Embarcadero-3rd St	x				
3rd St-9th St	x				
9th St-14th St	x				
14th St-Army *	x				
Army-Ocean *			x		
Ocean-Sickles	x				
Montgomery Street					
Broadway-Bush					
North Point Street					
Van Ness-Columbus			x		
Columbus-Embarcadero			x		
O'Farrell Street					
Gough-Mason *	x				
Mason-Market	x				
Oak Street					
Stanyan-Divisadero *	x		x		
Divisadero-Laguna	x		x		x
Laguna-Franklin					x
Ocean Avenue					
19th Ave-Miramar *	x				
Miramar-I-280	x				
Pine Street					
Market-Kearny	x				
Kearny-Leavenworth	x				
Leavenworth-Franklin	x				
Franklin-Presidio	x				
Potrero Avenue					
Division-21st St	x			x	
21st St-Army	x			x	
Skyline Drive					
Sloat-City & County limit					
Sloat Boulevard					
Skyline-J.Serra					
Stanyan Street					
Fulton-Turk					
Sutter Street					
Market-Mason *	x				
Mason-Gough	x				
Gough-Divisadero	x		x		
Turk Street					
Market-Hyde	x				
Hyde-Gough	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Hyde-Gough	x				
Gough-Divisadero	x				
Divisadero-Stanyan			x		
Van Ness Avenue					
Lombard-Washington	Sig.	Syst.	Change		
Washington-GoldenGate Av *	x				
Golden Gate Ave-13th St *					x
13th St-Army					x
Washington Street					
Kearny-Drumm					
West Portal Avenue					
Sloat-Ulloa					

* indicates change in segment boundary.

CMP NETWORK - FREEWAYS

Rationale for Segmentation

Freeway	Split	Off-ramp	On-ramp
I-280			
C & C limit- U.S. 101	x		
101/280 -6th/Brannan	x		
U.S.101			
C & C limit- I-280	x		
I-280- I-80	x		
I-80- Fell/Laguna	x		
I-80			
U.S. 101- Fremont		x	
Fremont- Treasure Island		x	

Table II
Rationale for Changes to Arterial Segmentation
Since 1991

Third Street	Eliminated Fairfax Street as a break point. Evans Avenue is the new break point because of the change in speed limit and because Evans is a major cross street.
Alemany Boulevard	Lyell Street is a necessary break point because of a speed limit change.
Army Street (César Chávez)	Because of the size of the U.S. 101 interchange at Army Street circle, a break point was established on each side of it. One is at Kansas Street and a second is at Bryant Street.
Bayshore Boulevard	Industrial is a necessary break point because of nearby off and on-ramps.
Bush Street	Gough is the best divider to break Bush into two segments because land use changes occur at Gough and because it is a major cross street.
Duboce Avenue	Folsom Street was eliminated as a break point and replaced with Mission Street, because of the presence of on and off ramps to 101.
Evans Avenue and Fremont Street	The 1991 intermediate segment limits could not be justified and were eliminated (no apparent change in traffic flow conditions)
Fulton Street	Arguello was identified as an intermediate segment limit because it is a major cross street and because of a speed limit change.
Harrison Street	Eliminated 2nd Street and substituted First Street is the first break point because of the I-80 on-ramp.
Junipero Serra Boulevard	The first segment boundary is 19th Avenue instead of Holloway, as justified by the change in speed limit and also because 19th Avenue is a major cross street.
Lombard Street	Eliminated intermediate segment boundaries because land uses and traffic conditions are uniform along this street.
Market Street	Established a new segment boundary at Clipper because of a change in grade on each side of Clipper. Eliminated unjustified breaks at Danvers, Sanchez and Gough.
Mission Street	Eliminated intermediate boundaries between 14th and Army and between Army and Ocean to better reflect land use.
O'Farrell Street	Eliminated intermediate segment boundaries at Van Ness, Leavenworth and Taylor, which created segments too short for accurate measurement. Mason is the new break point because of land use changes.
Van Ness Avenue	Added Golden Gate Avenue as an intermediate segment boundary because of land use changes (start of the Civic Center area).

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APPENDIX IV

Results of Level of Service Monitoring
2001 Cycle Performance Monitoring

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Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
1st Street	Market	Harrison	3	S	0.47		*	15.1	C							12.5	D	C to D
3rd Street	Jamestown	Evans	3	N	1.61		*	25.4	B							23.5	B	
	Evans	Jamestown	3	S	1.61		*	22.3	C							20.9	B	C to B
	Evans	China Basin	3	N	1.00	10.3	D	24.0	B							23.6	B	
	China Basin	Evans	3	S	2.40	10.3	D	24.1	B							23.8	B	
	China Basin	Market	3	N	2.40	12.1	D	12.1	D	15.3	C			10.8	D	9.2	D	D to E
4th St/	O'Farrell	Harrison	3	S			*	11.6	D	8.1	E	14.6	C					
Stockton	Harrison	3rd Street	3	S	0.76		*	15.0	C							13.7	C	
5th Street	Market	Brannan	3	S	0.72	7.9	E	11.6	C							9.9	D	C to D
	Brannan	Market	3	N	0.72	7.9	E	10.5	D	10.7	D	12.1	D	10.5	D	11.8	D	
6th Street	Market	Brannan	3	S	0.71		*	22.4	B							10.0	D	B to D
	Brannan	Market	3	N	0.71		*	13.8	C							4.7	F	C to F
7th Street	Brannan	Market	3	N	0.72	8.9	E	13.9	C					14.2	C			
8th Street	Market	Bryant	3	S	0.59		*	17.1	C					17.7	C			
9th Street	Brannan	Market	3	N	0.72	9.9	D	12.5	D	13.3	C					10.3	D	C to D
10th Street	Market	Brannan	3	S	0.71	12.1	D	20.5	B							16.3	C	B to C
19th Avenue/	U.S. 101	Lake	1	S	1.54		*	38.3	A							47.2	A	
Park Presidio	Lake	U.S. 101	1	N	1.57		*	38.8	A							28.6	A	
	Lake	Lincoln	3	S	1.83		*	20.9	B					22.0	B			
	Lincoln	Lake	3	N	1.83		*	21.9	B					19.7	B			
	Lincoln	Sloat	3	S	2.12	11.1	D	17.2	C					18.4	C			
	Sloat	Lincoln	3	N	2.12	11.1	D	19.2	B					15.0	C			
	Sloat	J. Serra	3	S	1.25		*	20.2	B					21.2	B			
	J. Serra	Sloat	3	N	1.25		*	19.2	B					23.1	B			
Alemany	County Line	Lyell	3	E	2.79		*	25.6	B							20.0	C	B to C
	Lyell	County Line	3	W	2.79		*	25.6	B							15.1	C	B to C

Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Lyell	Bayshore	3	E	1.42		*	28.5	A							19.0	C	A to C
	Bayshore	Lyell	3	W	1.42		*	35.4	A							28.4	A	
Bay Street	Van Ness	Embarcadero	3	E	0.71	12.7	D	22.4	B							16.8	C	B to C
	Embarcadero	Van Ness	3	W	0.71	12.7	D	19.7	B							22.8	B	
Bayshore	Oakdale	I-280	3	S		7.9	E		~							0.0		
	I-280	Oakdale	3	N		7.9	E		~							0.0		
	I-280	Silver	3	S			*		~							0.0		
	Silver	I-280	3	N			*		~							0.0		
	Silver	Paul	3	S		4.9	F		~							0.0		
	Paul	Silver	3	N		4.9	F		~							0.0		
	Paul	County Line	3	S			*		~							0.0		
	County Line	Paul	3	N			*		~							0.0		
	C. Chavez	Industrial	3	S	0.83			21.0	B							17.5	C	B to C
	Industrial	C. Chavez	3	N	0.83			20.2	B							14.8	C	B to C
	Industrial	County Line	3	S	2.24			27.4	A							23.3	B	A to B
	County Line	Industrial	3	N	2.24			20.9	B							25.3	B	
Beale/Davis	Clay	Mission	3	S	0.31		*	11.3	D	10.0	D	16.6	C	16.6	C			
Brannan	Division	9th Street	3	E	0.08		*	14.4	C	9.2	D	10.2	D	10.4	D	15.6	C	D to C
	9th Street	Division	3	W	0.08		*	13.7	C							14.4	C	
	6th Street	5th Street	3	E	0.09		*	7.7	E	7.7	E	9.3	D	9.3	D	13.3	C	D to C
	5th Street	6th Street	3	W	0.09		*	8.9	E	6.1	F					10.8	D	F to D
Broadway	Gough	Larkin	3	E	0.37		*	19.2	B					9.0	D	10.6	D	
	Larkin	Gough	3	W	0.37		*	10.6	D	11.2	D	12.9	D	15.2	C	17.1	C	
	Larkin	Powell	1	E	0.54		*	22.5	B					15.1	E	16.6	E	
	Powell	Larkin	1	W	0.54		*	35.6	A					16.0	E	20.0	D	E to D
	Powell	Montgomery	3	E	0.34		*	16.8	C					8.0	E	10.9	D	E to D
	Montgomery	Powell	3	W	0.34		*	15.2	C					10.0	D	8.9	E	D to E
	Montgomery	Embarcdero	3	E	0.35		*	11.2	D	9.4	D	15.1	C	12.2	E	11.6	D	E to D
	Embarcadero	Montgomery	3	W	0.35		*	17.7	C					14.8	C	11.2	D	C to D
Bryant	Division	4th Street	3	E	0.99	7.7	E	12.2	D	13.2	C			12.9	D	13.2	C	D to C

Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	4th Street	Embarcadero	3	E	0.78		*	21.8	B					14.4	C			
Bush	Masonic	Gough	3	E	1.23		*	17.3	C							22.4	B	C to B
	Gough	Market	3	E	1.36	3.2	F	10.9	D	9.6	D	11.4	D	11.6	D	12.6	D	
Castro/ Divisadero	Pine	Geary	3	S	0.27		*	14.2	C					13.2	C	7.3	E	C to E
	Geary	Pine	3	N	0.27		*	10.8	D	7.7	E	7.5	E	7.4	E	7.3	E	
	Geary	14th	3	S	1.16		*	14.8	C					14.0	C	11.5	D	C to D
	14th	Geary	3	N	1.16	4.5	F	14.0	C					10.6	D	11.2	D	
	14th Street	Market	3	S	0.34		*	11.9	D	10.4	D	13.3	C	14.2	C			
Castro/ Divisadero	Market	14th Street	3	N	0.34		*	17.5	C					11.9	D	10.1	D	
Cesar Chavez	Guerrero	SVanNess	3	E	0.36		*	16.1	C							13.6	C	
	SVanNess	Guerrero	3	W	0.36	5.8	F	17.8	C							13.0	D	C to D
	SVanNess	Evans	3	E	1.02		*	21.0	B							17.9	C	B to C
	Evans	SVanNess	3	W	1.02		*	20.6	B							23.7	B	
	Evans	Penn.	3	E			*		~							25.4	A	
	Penn.	Evans	3	W			*		~							21.6	B	
	Penn.	3rd Street	3	E			*		~							17.3	C	
	3rd Street	Penn.	3	W			*		~							16.3	C	
	Guerrero	Bryant	3	E	0.75			19.0	B							14.3	C	B to C
	Bryant	Guerrero	3	W	0.75			19.6	B							16.2	C	B to C
	Kansas	Bryant	3	E	0.37			17.7	C							31.9	A	C to A
	Bryant	Kansas	3	W	0.37			19.9	B							28.9	A	B to A
	Kansas	3rd Street	3	E	0.79			17.6	C							19.5	B	C to B
	3rd Street	Kansas	3	W	0.79			19.4	B							18.8	C	B to C
Clay	Kearny	Davis	3	E	0.37	11.7	D	3.7	E					12.5	D	10.6	D	
Columbus	North Point	Greenwich	3	S	0.50		*	18.6	C					16.9	C			
	Greenwich	North Point	3	N	0.50		*	22.6	B					9.1	D	18.2	C	D to C
	Greenwich	Montgomery	3	S	0.67		*	16.3	C					11.1	D	9.2	D	
	Montgomery	Greenwich	3	N	0.67		*	14.0	C					14.9	C			

Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Drumm	Washington	Market	3	S	0.23		*	5.3	F	5.3	F					22.0	B	F to B
	Market	Washington	3	N	0.23		*	19.9	B							23.0	B	
Duboce/	Market	Mission	3	E	0.34		*	7.7	E	9.1	D	3.0	F	8.8	E	5.5	F	E to F
Division	Mission	Market	3	W	0.34		*	10.7	D	11.7	D	9.4	D	13.5	C			
	Mission	Potrero	3	E	0.64	9.9	D	12.0	D	11.5	D	10.4	D	12.6	D	13.0	C	D to C
	Potrero	Mission	3	W	0.64	9.9	D	17.1	C							11.3	D	C to D
Embarcadero	Townsend	North Point	3	N			*	21.2	B							14.5	C	B to C
	North Point	Townsend	3	S			*	15.2	C							13.8	C	
Evans	C. Chavez	Toland	3	S	0.18		*	14.3	C							15.4	C	
	Toland	C. Chavez	3	N	0.18		*	12.1	D	16.5	C					10.7	D	C to D
	Toland	3rd Street	3	S	0.53		*	17.0	C							23.3	B	C to B
	3rd Street	Toland	3	N	0.53		*	25.9	A							21.7	B	A to B
	C. Chavez	3rd Street	3	S	0.71			16.3	C							20.4	B	C to B
Evans	3rd Street	C. Chavez	3	N	0.71			19.9	B							17.0	C	B to C
Fell	Gough	Market	3	E	0.30		*	11.6	D	12.0	D	4.3	F	8.1	E	7.6	E	
	Gough	Laguna	3	W	0.20		*	26.7	A							11.8	D	A to D
	Laguna	Stanyan	3	W	1.55		*	19.0	B							24.5	B	
Franklin	Market	Pine	3	N	1.06	8.5	E	13.3	C							11.5	D	C to D
	Pine	Lombard	3	N	0.82		*	14.0	C							26.3	A	C to A
Fremont	Harrison	Market	3	N	0.85		*	6.4	F							11.3	D	F to D
Fulton	Park Pres.	10th Avenue	3	E	0.20		*	16.7	C							15.2	C	
	10th Avenue	Park Pres.	3	W	0.20		*	14.2	C							10.4	D	C to D
	10th Avenue	Arguello	3	E	0.53		*	22.4	B							16.3	C	B to C
	Arguello	10th Avenue	3	W	0.53		*	22.0	B							28.7	A	B to A
	Arguello	Masonic	3	E	0.66	9.8	D	18.6	C							11.5	D	C to D
	Masonic	Arguello	3	W	0.66		*	15.9	C							16.2	C	
Geary	Great Hwy.	25th Avenue	3	E	1.47		*	24.2	B							23.5	B	
	25th Avenue	Great Hwy.	3	W	1.47		*	28.3	A							26.0	A	

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Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	25th Avenue	Arguello	3	E	1.42		*	21.6	B					10.6	D	20.7	B	D to B
	Arguello	25th Avenue	3	W	1.42		*	21.3	B					13.7	C			
	Arguello	Gough	3	E	1.89		*	25.3	A					24.6	B			
	Gough	Arguello	3	W	1.89		*	23.8	B					24.7	B			
	Market	Gough	3	W	1.21		*	12.3	D	15.4	C			7.2	E	15.2	C	E to C
Geneva	Phelan	Cayuga	3	E	0.57		*	15.0	C							20.4	B	C to B
	Cayuga	Phelan	3	W	0.57		*	4.5	F	15.5	C					15.0	C	
	Cayuga	Paris	3	E	0.40	10.4	D	11.7	D	13.0	C					16.1	D	C to D
	Paris	Cayuga	3	W	0.40	10.4	D	11.6	D	13.3	C					18.7	C	
	Paris	Santos	3	E	1.18		*	29.7	A							25.0	B	A to B
	Santos	Paris	3	W	1.18		*	27.4	A							27.3	A	
Golden Gate	Masonic	Franklin	3	E	1.36		*	19.3	B							17.2	C	B to C
	Franklin	Market	3	E		12.2	D	16.9	C							13.2	C	
Gough	Pine	Geary	3	S	0.27	9.5	D	25.6	A							28.4	A	
	Geary	Golden Gate	3	S	0.34		*	20.1	B							20.1	B	
	Golden Gate	Market	3	S	0.57	8.3	E	12.8	D	11.1	D	6.5	F	18.9	C			
Guerrero/ San Jose	Cesar Chavez	29th Street	3	S	0.30		*	26.3	A							20.5	B	A to B
	29th Street	Cesar Chavez	3	N	0.30	6.2	F	19.3	B							15.2	C	B to C
	29th Street	Monterey	1	S	0.97		*	23.7	B							31.6	B	
	Monterey	29th Street	1	N	1.24		*	17.3	C							33.8	B	C to B
Harrison	Embarcadero	1st Street	3	W	0.34			34.8	A							13.8	C	A to C
	1st Street	4th Street	3	W	0.56			27.6	A							15.2	C	A to C
	4th Street	8th Street	3	W	0.68			28.9	A							26.2	A	
	8th Street	Division	3	W	0.40			14.4	C							13.6	C	
	Embarcadero	2nd Street	3	W	0.49		*		~							11.8	D	
	2nd Street	4th Street	3	W	0.35		*		~							19.8	B	
	4th Street	8th Street	3	W	0.69		*		~							26.6	A	
	8th Street	Division	3	W	0.40		*		~							13.6	C	
Hayes	Market	Gough	3	W	0.38		*	10.2	D	11.1	D	11.6	D	23.3	B			

Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Howard	Embarcadero	SVanNess	3	W	2.20		*	14.9	C							14.2	C	
J. Serra	Sloat	19th	1	S	1.25		*	32.4	B							20.9	D	B to D
	19th	Sloat	1	N	1.25		*	27.0	C							19.4	D	C to D
	19th	Brotherhood	1	S	0.30		*	19.9	B							30.7	B	
	Brotherhood	19th	1	N	0.30	9.7	D	23.8	C							36.7	A	C to A
	Brotherhood	County Line	1	S	0.37		*	41.9	A							38.7	A	
	County Line	Brotherhood	1	N	0.37		*	40.4	A							33.3	B	A to B
Kearny	Market	Columbus	3	N	0.63	6.3	F	13.7	C					8.8	E	12.9	D	E to D
King	7th Street	2nd Street	3	E	0.86		*	12.4	D	15.6	C			14.6	C			
	2nd Street	7th Street	3	W	0.86		*	13.9	C					13.3	C			
Lincoln/	19th Avenue	5th Ave.	3	E	0.83		*	22.6	B							11.4	D	B to D
Kezar	5th Ave.	19th Avenue	3	W	0.83		*	25.2	A							10.6	D	A to D
	5th Ave.	Stanyan	3	E	0.69		*	10.7	D	12.2	D	23.4	B					
	Stanyan	5th Ave.	3	W	0.69		*	31.7	A							9.9	D	A to D
Lombard	Francisco	Broderick	3	E	0.16	7.6	E		~							10.7	D	E to D
	Broderick	Francisco	3	W	0.16		*		~							12.5	D	
	Broderick	Pierce	3	E	0.31		*		~							14.5	C	
	Pierce	Broderick	3	W	0.31		*		~							16.9	C	
	Pierce	Laguna	3	E	0.45		*		~							16.2	C	
Lombard	Laguna	Pierce	3	W	0.45		*		~							18.3	C	
	Laguna	Van Ness	3	E	0.33		*		~							11.7	D	
	Van Ness	Laguna	3	W	0.33		*		~							16.7	C	
	Francisco	Van Ness	3	E	1.28			22.2	B							13.7	C	B to C
	Van Ness	Francisco	3	W	1.28			19.7	B							16.9	C	B to C
Main	Mission	Market	3	N	0.13		*	9.9	D	9.8	D	8.4	E	11.5	D	11.8	D	
Market/	Sloat	Santa Clara	3	E	0.41		*	16.0	C					18.9	C			
Portola	Santa Clara	Sloat	3	W	0.41		*	13.2	C					9.5	D	18.2	C	D to C

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Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Santa Clara	Clipper	3	E	2.45		*	24.1	B					33.0	A			
	Clipper	Santa Clara	3	W	2.45		*	22.8	B					30.2	A			
	Clipper	Castro	3	E	1.67	7.0	F	33.0	A					22.0	B			
	Castro	Clipper	3	W	1.67		*	28.0	B					27.5	B			
	Castro	Guerrero	3	E	0.80	8.7	E	20.0	B					15.7	C			
	Guerrero	Castro	3	W	0.80		*	18.8	B					14.8	C			
	Guerrero	Van Ness	3	E	0.22	8.3	E	16.3	C					9.3	D	16.2	C	D to C
	Van Ness	Guerrero	3	W	0.22	8.3	E	17.8	C					7.3	E	23.3	B	E to B
	Van Ness	Drumm	3	E	1.76	9.6	D	14.4	C							8.4	E	C to E
	Drumm	Van Ness	3	W	1.76	9.6	D	15.3	C							12.0	D	C to D
Masonic	Pine	Geary	3	S	0.27	8.5	E	11.2	D	15.7	C					10.3	D	C to D
	Geary	Pine	3	N	0.27	8.5	E	14.6	C							9.7	D	C to D
	Geary	Page	3	S	0.73	10.0	D	16.4	C							14.8	C	
	Page	Geary	3	N	0.73	10.0	D	13.1	C							11.3	D	C to D
Mission/ Otis	Embarcadero	3rd Street	3	S	0.73	9.7	D	8.0	E	10.8	D	14.3	C	10.7	D	9.7	D	
	3rd Street	Embarcadero	3	N	0.73	9.7	D	8.9	E	10.8	D	11.2	D	8.2	E	8.7	E	
	3rd Street	9th Street	3	S	0.98		*	16.9	C					16.2	C			
	9th Street	3rd Street	3	N	0.98		*	13.7	C					13.4	C			
	9th Street	14th Street	3	S	0.67	9.7	D	12.8	D	12.8	D	10.7	D	11.7	D	8.7	E	D to E
	14th Street	9th Street	3	N	0.65		*	12.0	D	11.3	D	11.0	D	10.0	D	8.1	E	D to E
	14th Street	Cesar Chavez	3	S	1.37	10.9	D	17.9	C					14.8	C			
	Cesar Chavez	14th Street	3	N	1.37	10.9	D	19.8	B					14.3	C			
	Cesar Chavez	Ocean	3	S	1.94		*	17.6	C					19.6	B			
	Ocean	Cesar Chavez	3	N	1.94		*	20.3	B					20.4	B	18.3	C	B to C
	Ocean	Sickles	3	S	1.88		*	20.8	B					31.8	A			
	Sickles	Ocean	3	N	1.88		*	21.1	B					26.5	A			
Montgomery	Broadway	Bush	3	S	0.38	6.2	F	6.5	F							9.3	D	F to D
North Point	Van Ness	Columbus	3	E	0.38		*	15.2	C							12.5	D	C to D
	Columbus	Van Ness	3	W	0.38		*	15.3	C							13.7	C	
	Columbus	Embarcadero	3	E			*	14.9	C							15.4	C	
	Embarcadero	Columbus	3	W			*	16.0	C							13.9	C	

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Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Oak	Stanyan	Lyon	3	E	0.64		*		~							26.2	A	
	Lyon	Divisadero	3	E	0.27	7.5			~							18.9	C	
	Divisadero	Fillmore	3	E	0.36		*		~							25.2	A	
	Fillmore	Laguna	3	E	0.27	8.2			~							8.8	E	
	Laguna	Franklin	3	E			*		~							7.5	E	
	Stanyan	Divisadero	3	E	0.91			23.1	B							23.5	B	
	Divisadero	Laguna	3	E	0.63			21.7	B							14.0	C	B to C
	Laguna	Franklin	3	E			*	20	B							8.4	E	B to E
Ocean	19th Avenue	Miramar	3	E			*	19.5	B							7.6	E	B to E
	Miramar	19th Avenue	3	W			*	15.4	C							9.2	D	C to D
	Miramar	Howth	3	E			*									7.6	E	
	Howth	Miramar	3	W			*	9.4	D	16.3	C					8.6	E	C to E
O'Farrell	Gough	Mason	3	E	0.93		*	16.6	C							13.5	C	
	Mason	Market	3	E	0.27		*	18.7	C							10.9	D	C to D
Pine	Market	Kearny	3	W	0.38	4.6	F	9.9	D	7.3	E	8.1	E	8.3	E	7.9	E	
	Kearny	Leavenworth	3	W	0.63		*	16.2	C							15.6	C	
	Leavenworth	Franklin	3	W	0.46		*	17.2	C							9.4	D	C to D
	Franklin	Presidio	3	W	1.26		*	20.0	B							20.4	B	
Potrero	Division	21st Street	3	S	0.80		*	24.8	B					18.2	C			B to C
	21st Street	Division	3	N	0.80		*	21.4	B					18.3	C			B to C
	21st Street	C. Chavez	3	S	0.61		*	20.1	B					13.5	C			B to C
	C. Chavez	21st Street	3	N	0.61		*	25.2	A					15.5	C			A to C
Richardson - See Lombard																		
Skyline	Sloat	County Line	3	S	2.32		*	41.6	A							41.6	A	
	County Line	Sloat	3	N	1.92		*	43.7	A							41.8	A	
Sloat	Skyline	J. Serra	1	E	1.36		*	19.8	D	21.5	D	14.5	E	18.1	D	23.4	C	D to C
	J. Serra	Skyline	1	W	1.34		*	23.3	C							23.5	C	

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Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Stanyan	Fulton	Turk	3	N	0.19		*	12.2	D	12.8	D	13.2	C					
Stanyan	Turk	Fulton	3	S	0.19		*	11.6	D	7.4	E	16.7	C					
Sutter	Market	Mason	3	W	0.56		*	11.6	D	10.2	D	13.2	C					
	Mason	Gough	3	W	0.87	9.0	D	12.3	D	13.4	C					14.5	C	
	Gough	Divisadero	3	W	0.82		*	14.1	C							15.5	C	
	Divisadero	Gough	3	E	0.82		*	13.9	C							12.4	D	C to D
Turk	Market	Hyde	3	W	0.37		*	10.9	D	11.6	D	11.2	D	11.7	D	8.1	E	D to E
	Hyde	Gough	3	W	0.45		*	14.1	C							10.1	D	C to D
	Gough	Divisadero	3	W	0.82		*	22.1	B							22.4	B	
	Divisadero	Stanyan	3	W	0.91		*	17.1	C							23.1	B	C to B
	Stanyan	Divisadero	3	E	0.91		*	21.0	B							15.5	C	B to C
Van Ness/	Lombard	Washington	3	S	0.58	4.5	F	18.2	C					7.6	E	12.2	D	E to D
SVanNess	Washington	Lombard	3	N	0.58		*	11.9	D	14.3	D	12.1	D	9.4	D	12.6	D	
	Washington	Golden Gate	3	S	0.83		*	15.0	C					9.2	D	7.3	E	D to E
	Golden Gate	Washington	3	N	0.83		*	13.6	C					10.4	D	10.4	D	
	Golden Gate	13th	3	S	1.21		*	17.3	C					16.6	C			
	13th	Golden gate	3	N	0.79		*	15.9	C					18.2	C			
	13th	C. Chavez	3	S	1.39	12.6	D	15.7	C					16.8	C			
	C. Chavez	Market	3	N	1.39		*	20.4	B					14.0	C			
Washington	Drumm	Kearny	3	W	0.28		*	14.2	C					7.9	E	30.5	A	E to A
West Portal	Ulloa	Sloat	3	S	0.38		*	16.1	C							12.4	D	C to D
	Sloat	Ulloa	3	N	0.38		*	17.8	C							14.8	C	

Table I

Results of Roadway Level of Service (LOS) Monitoring - A.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
FREEWAY SEGMENTS INBOUND																		
I-280	C & C Limit	US 101		E	4.14	22.9	F	43.0	E	27.3	F					43.2	D	F to D
	U.S. 101	6th/Brannan		NE	3.36	section closed		29.1	F							30.5	E	F to E
US 101	C & C Limit	I-280		N	1.8	10.9	F	47.2	D	31.0	E	30.1	E	35.7	E	44.8	D	E to D
	I-280	I-80		N	2.3	21.4	F	21.2	F							28.1	F	
	I-80	Fell/Laguna		NW	1.6	18.7	F	45.4	E	44.8	E	37.6	E	36.9	E	section	closed	
I-80	Treasure I.	Fremont		S	2.13	17.5	F	32.2	E	26.5	F					28.8	F	
	Fremont	US 101		SW	2.13	48.1	D	33.3	E	37.9	E	32.7	E	40.4	E	25.9	F	E to F
FREEWAY SEGMENTS OUTBOUND																		
I-280	6th/Brannan	US 101		W	3.4	section closed		51.9	D	46.4	D	54.8	C			47.3	C	
	US 101	C & C Limit		SW	4.1	55.7	C	57.5	B							51.5	C	B to C
US 101	Fell/Laguna	I-80		S	1.3	13.5	F	17.9	F							section	closed	
	I-80	I-280		S	2.3	45.8	E	53.6	D	36.4	E	42.3	E	44.7	D	40.1	E	D to E
	I-280	C & C Limit		S	2.1	53.3	D	45.6	E	36.3	E	34.1	E	39.0	E	33.3	E	
I-80	US 101	Fremont		N	2.13	18.6	F	53.6	D	36.0	E	32.4	E	28.8	F	16.3	F	..
	Fremont	Treasure I.		NE	2.13	50.6	D	50.8	D	39.9	E	40.3	E	30.5	F	36.5	E	F to E

NOTE: Average Speed (AvSp) is an Indication of the average travel time. All sample times for each segment were averaged to obtain the AvSp.

* Indicates the Level of Service 'C' or better for that particular segment

~ Indicates an 'overlap' in segments because of changes in the segmentation boundaries from 1991.

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
1st Street	Market	Harrison	3	S	0.47	1.2	F	15.5	C							2.1	F	C to F
3rd Street	Jamestown	Evans	3	N	1.56		*	18.5	C							20.2	B	C to B
	Evans	Jamestown	3	S	1.56		*	17.6	C							18.1	C	
	Evans	China Basin	3	N	2.40	10.3	D	18.5	C							20.5	B	C to B
	China Basin	Evans	3	S	2.40	10.3	D	17.0	C							20.2	B	C to B
	China Basin	Market	3	N	1.00	12.1	D	8.8	D	11.6	D	10.2	D	11.7	D	11.6	D	
4th St/	Market	Harrison	3	S	0.47	4.7	F	8.4	E	10.5	D	10.5	D	5.9	F	10.5	D	F to D
Stockton	Harrison	3rd Street	3	S	0.76		*	23.0	B							7.9	E	B to E
5th Street	Market	Brannan	3	S	0.72	7.9	E	13.5	C							5.2	F	C to F
	Brannan	Market	3	N	0.72	7.9	E	12.7	D	7.7	E	11.3	D	7.6	E	16.5	C	E to C
6th Street	Market	Brannan	3	S	0.71	6.7	F	11.5	D	12.0	D	9.4	D	9.5	D	6.8	F	D to F
	Brannan	Market	3	N	0.71		*	12.7	D	7.6	E	11.2	D	9.0	D	6.4	F	D to F
7th Street	Brannan	Market	3	N	0.72	8.9	E	16.8	C					13.7	C			
8th Street	Market	Bryant	3	S	0.59		*	15.8	C					15.7	C			
9th Street	Brannan	Market	3	N	0.72	9.9	D	12.4	D	9.7	D	13.8	C	11.2	D	9.1	D	
10th Street	Market	Brannan	3	S	0.71	12.1	D	20.5	B							13.7	C	B to C
19th Avenue/	U.S. 101	Lake	1	S	1.54		*	36.4	A							34.5	A	
Park Presidio	Lake	U.S. 101	1	N	1.57		*	35.9	A							15.6	B	A to B
	Lake	Lincoln	3	S	1.83		*	26.4	A					20.3	B			
	Lincoln	Lake	3	N	1.83		*	25.4	A					19.8	B			
	Sloat	Lincoln	3	N	2.12	11.1	D	21.9	B					17.5	C			
	Lincoln	Sloat	3	S	2.12	11.1	D	21.0	B					18.6	B			
	J. Serra	Sloat	3	N	1.25		*	18.4	C					11.9	D			
	Sloat	J. Serra	3	S	1.25		*	17.5	C					21.5	B			
Alemany	County Line	Lyell	3	E	2.79		*	29.5	B							20.8	B	
	Lyell	County Line	3	W	2.79		*	22.1	C							23.9	B	C to B
	Lyell	Bayshore	3	E	1.42		*	32.9	A							12.7	D	A to D
	Bayshore	Lyell	3	W	1.42	4.6	F	30.8	A							23.3	B	A to B

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Bay	Van Ness	Embarcadero	3	E	0.71	12.7	D	16.8	C							12.1	E	C to E
Bay	Embarcadero	Van Nass	3	W	0.71	12.7	D	12.0	D	15.7	C					13.1	D	C to D
Bayshore	Oakdale	I-280	3	S		7.9	E		~							0.0		
	I-280	Oakdale	3	N		7.9	E		~							0.0		
	I-280	Silver	3	S			*		~							0.0		
	Silver	I-280	3	N			*		~							0.0		
	Silver	Paul	3	S			*		~							0.0		
	Paul	Silver	3	N			*		~							0.0		
	Paul	County Line	3	S			*		~							0.0		
	County Line	Paul	3	N			*		~							0.0		
	C. Chavez	Industrial	3	S	0.83			21.0	B							28.4	A	B to A
	Industrial	C. Chavez	3	N	0.83			26.4	A							16.4	C	A to C
	Industrial	County Line	3	S	2.24			22.0	B							26.4	A	B to A
	County Line	Industrial	3	N	2.24			22.6	B							33.9	A	B to A
Beale/Davis	Clay	Mission	3	S	0.31		*	13.4	C							8.4	E	C to E
Brannan	Division	9th Street	3	E	0.08		*	25.4	A							4.5	F	A to F
	9th Street	Division	3	W	0.08		*	13.1	C							1.8	F	C to F
	6th Street	5th Street	3	E	0.09		*	14.3	C							5.5	F	C to F
	5th Street	6th Street	3	W	0.09		*	11.7	D	11.6	D	10.1	D	8.6	E	5.6	F	E to F
Broadway	Gough	Larkin	3	E	0.37		*	14.6	C					14.2	C	10.0	D	C to D
	Larkin	Gough	3	W	0.37	7.7	E	14.6	C					7.8	E	9.9	D	E to D
	Larkin	Powell	1	E	0.54		*	38.9	A					25.5	C	11.0	D	C to D
	Powell	Larkin	1	W	0.54		*	24.7	C					25.3	C	11.0	D	C to D
	Powell	Montgomery	3	E	0.34		*	16.3	C					12.4	D	10.4	D	
	Montgomery	Powell	3	W	0.34	6.2	F	8.4	E	9.2	D	12.5	D	8.5	E	8.3	E	
	Montgomery	Embarcadero	3	E	0.35		*	13.1	C					8.4	E	7.9	E	
	Embarcadero	Montgomery	3	W	0.35		*	15.4	C					9.6	D	4.4	F	D to F
Bryant	Division	4th Street	3	E	0.99	7.7	E	11.8	D	9.8	D	12.8	D	15.7	C	10.6	D	C to D
	4th Street	Embarcadero	3	E	0.78		*	13.2	C							9.5	D	C to D
Bush	Masonic	Gough	3	E	1.23		*	20.0	B							20.5	B	
	Gough	Market	3	E	1.36	3.2	F	10.1	D	11.5	D	11.7	D	11.6	D	10.2	D	
Castro/	Pine	Geary	3	S	0.27		*	11.6	D	8.1	E	11.0	D	8.3	E	12.6	D	E to D
Divisadero	Geary	Pine	3	N	0.27		*	8.4	E	13.5	C			9.8	D	14.6	C	D to C

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Geary	14th	3	S	1.16		*	15.7	C					11.4	D	12.1	D	
	14th	Geary	3	N	1.16	4.5	F	12.8	D	11.2	D	12.3	D	11.8	D	11.1	D	
	14th Street	Market	3	S	0.34		*	13.8	C					14.3	C	17.3	C	
	Market	14th Street	3	N	0.34	7.7	E	16.7	C					12.1	D	16.1	C	D to C
Cesar Chavez	Guerrero	Bryant	3	E	0.75			20.7	B							15.1	C	B to C
	Bryant	Guerrero	3	W	0.75			16.5	C							15.8	C	
	Kansas	Bryant	3	E	0.37			17.5	C							0.2		
	Bryant	Kansas	3	W	0.37			26.7	B							8.5	E	B to E
	Kansas	3rd Street	3	E	0.79			17.3	C							12.0	D	C to D
	3rd Street	Kansas	3	W	0.79			16.3	C							-0.1		
	Guerrero	SVanNess	3	E	0.36		*	14.5	C							13.3	C	
	SVanNess	Guerrero	3	W	0.36	5.8	F	17.8	C							10.8	D	C to D
	SVanNess	Evans	3	E	1.02		*	19.6	B							17.1	C	B to C
	Evans	SVanNess	3	W	1.02		*	20.5	B							20.1	B	
	Evans	Penn.	3	E			*									0.0		
	Penn.	Evans	3	W		6.5	F	16.6	C							0.0		
	Penn.	3rd Street	3	E			*									0.0		
	3rd Street	Penn.	3	W			*	14.8	C							0.0		
Clay	Kearny	Davis	3	E	0.37	11.7	D	7.0	E	8.7	E	10.4	D	10.4	D	9.4	D	
Columbus	North Point	Greenwich	3	S	0.50		*	15.2	C					17.7	C			
	Greenwich	North Point	3	N	0.50		*	13.4	C					16.2	C			
	Greenwich	Montgomery	3	S	0.67	6.3	F	16.0	C					10.2	D	9.3	D	
	Montgomery	Greenwich	3	N	0.67	6.3	F	12.8	D	12.9	D	10.3	D	11.1	D	15.0	C	D to C
Drumm	Washington	Market	3	S	0.23		*	9.3	D	3.6	F					17.4	C	F to C
	Market	Washington	3	N	0.23		*	12.8	D	13.5	C					24.7	B	C to B
Duboce/ Division	Market	Mission	3	E	0.34		*	10.0	D	15.4	C					7.5	E	C to E
	Mission	Market	3	W	0.34	6.3	F	6.2	F							7.4	E	F to E
	Mission	Potrero	3	E	0.64	9.9	D	14.1	C							14.2	C	
	Potrero	Mission	3	W	0.64	9.9	D	16.4	C							12.0	D	C to D
Embarcadero	North Point	Townsend	3	S			*	9.0	D	16.4	C					14.7	C	
	Townsend	North Point	3	N			*	16.7	C							6.4	F	C to F
Evans	Cesar Chavez	Toland	3	S	0.18		*	20.4	B							10.8	D	B to D

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Toland	Cesar Chavez	3	N	0.18	5.1	F	11.6	D	14.4	C					9.4	D	C to D
	Toland	3rd Street	3	S	0.53		*	21.8	B							19.7	B	
	3rd Street	Toland	3	N	0.53		*	27.6	A							21.9	B	A to B
	Cesar Chavez	3rd Street	3	S	0.71			21.4	B							15.4	C	B to C
	3rd Street	Cesar Chavaz	3	N	0.71			20.3	B							15.2	C	B to C
Fell	Gough	Market	3	E	0.30		*	13.5	C							9.4	D	C to D
	Gough	Laguna	3	W	0 28	5.6	F	13.3	C	7.3	E	8.2	E	12 0	D	7.8	E	D to E
	Laguna	Stanyan	3	W	1.55		*	20.7	B							23.5	B	
Franklin	Market	Pine	3	N	1.06	8.5	E	18.8	C							14.6	C	
	Pine	Lombard	3	N	0.82		*	16.4	C							7.3	E	C to E
Fremont	Harrison	Market	3	N	0.85		*	9.3	D	10.6	D	16.6	C			3.2	F	C to F
Fulton	Park P.	Arguello	3	E	0.73		*	20.1	B							20.5	B	
	Arguello	Park P.	3	W	0.73		*	15.9	C							18.4	C	
	Arguello	Masonic	3	E	0.66	9 8	D	13.2	C							14.8	C	
	Masonic	Arguello	3	W	0.66		*	18.9	C							14.7	C	
Geary	Great Hwy.	25th Avenue	3	E	1.47		*	26.2	A							20.1	B	A to B
	25th Avenue	Great Hwy.	3	W	1.47		*	23 9	B							29.4	A	B to A
	25th Avenue	Arguello	3	E	1.42		*	21.5	B					15.0	C			
	Arguello	25th Avenue	3	W	1.42	11.3	D	20.3	B					15.8	C			
	Arguello	Gough	3	E	1.89	11.3	D	22.6	B					20.7	B			
	Gough	Arguello	3	W	1.89		*	23.1	B					21.2	B			
	Market	Gough	3	W	1.21	6.7	F	9.9	D	14.4	C			15.9	C	23.8	B	C to B
Geneva	Phelan	Cayuga	3	E	0.57		*	12.0	D	17.2	C					14.6	C	
	Cayuga	Phelan	3	W	0.57	6.7	F	10.4	D	12.0	D	9.6	D	14.2	C			
	Cayuga	Paris	3	E	0.40	10.4	D	12.1	D	10.5	D	15.5	C					
	Paris	Cayuga	3	W	0.40	10.4	D	12.3	D	10.7	D	11.9	D	12.8	D	12.7	D	
	Paris	Santos	3	E	1.18		*	20.5	B							22.1	B	
	Santos	Paris	3	W	1.18		*	22.6	B							31.3	A	B to A
Golden Gate	Masonic	Franklin	3	E	1.36		*	20.4	B							16.0	C	B to C
	Franklin	Market	3	E		12.2	D	15.2	C							14.3	C	
Gough	Pine	Geary	3	S	0.27	9.5	D	21.8	B							6.5	F	B to F

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Geary	Golden Gate	3	S	0.34		*	17.1	C							15.8	C	
	Golden Gate	Market	3	S	0.57	8.3	E	16.4	C							7.6	E	C to E
Guerrero/	Cesar Chavez	29th Street	3	S	0.30		*	24.0	B							24.9	A	B to A
San Jose	29th Street	Cesar Chavez	3	N	0.30	-	*	12.6	D	7.9	E	17.8	C			15.6	C	
	29th Street	Monterey	1	S	0.97		*	21.6	D	23.0	C					26.8	C	
	Monterey	29th Street	1	N	1.24		*	30.8	B							41.2	A	B to A
Harrison	Embarcadero	1st Street	3	W	0.34			11.4	D	11.6	D	9.6	D	9.4	D	14.5	C	D to C
	1st Street	4th Street	3	W	0.56			20.5	B							14.0	C	B to C
	4th Street	8th Street	3	W	0.68			19.1	B							16.0	C	B to C
	8th Street	Division	3	W	0.40			13.6	C							13.0	C	
	Embarcadero	2nd Street	3	W	0.49	5.7	F		~							13.7	C	F to C
	2nd Street	4th Street	3	W	0.35	2.9	F		~							14.1	C	F to C
	4th Street	8th Street	3	W	0.69	12.7	D		~							16.2	C	D to C
	8th Street	Division	3	W	0.40		*		~							13.0	C	
Hayes	Market	Gough	3	W	0.38	5.6	F	11.7	D	15.7	C					10.9	D	C to D
Howard	Embarcadero	S. Van Ness	3	W	2.20	5.4	F	13.6	C							13.0	C	
J. Serra	Sloat	19th	1	S	0.91		*	18.0	D	20.6	D	11.8	F	12.0	F	18.1	D	F to D
	19th	Sloat	1	N	0.91		*	20.5	D	18.9	D	12.8	F	19.3	D	14.4	E	D to E
	19th	Brotherhood	1	S	0.63		*	22.1	C							16.6	E	C to E
	Brotherhood	19th	1	N	0.63		*	19.1	D	21.7	D	23.6	D	26.5	C			
	Brotherhood	County Line	1	S	0.37		*	48.1	A							26.3	B	A to B
	County Line	Brotherhood	1	N	0.37		*	40.4	A							26.3	B	A to B
Kearny	Market	Columbus	3	N	0.63	6.3	F	12.9	D	10.8	D	9.2	D	9.1	D	8.1	E	D to E
King	7th Street	2nd Street	3	E	0.86		*	11.8	D	19.6	B			17.0	C			
	2nd Street	7th Street	3	W	0.86		*	16.9	C					15.8	C			
Lincoln/	19th Avenue	5th Ave.	3	E	0.83		*	16.4	C							14.5	C	
Kezar	5th Ave.	19th Avenue	3	W	0.83	11.3	D	20.8	B							12.0	D	B to D
	5th Ave.	Stanyan	3	E	0.69		*	22.8	B							14.0	C	B to C
	Stanyan	5th Ave.	3	W	0.69		*	21.3	B							9.8	D	B to D
Lombard	Francisco	Broderick	3	E	0.16		*		~							7.8	E	

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Broderick	Francisco	3	W	0.16		•		~							18.6	C	
	Broderick	Pierce	3	E	0.31		•		~							12.3	D	
	Pierce	Broderick	3	W	0.31		•		~							27.0	A	
	Pierce	Laguna	3	E	0.45		•		~							13.5	C	
	Laguna	Pierce	3	W	0.45	7.0	F		~							23.6	B	F to B
	Laguna	Van Ness	3	E	0.33		•		~							14.3	C	
	Van Ness	Laguna	3	W	0.33	8.6	E		~							12.8	D	E to D
	Francisco	Van Ness	3	E	1.28			16.4	C							14.8	C	
	Van Ness	Francisco	3	W	1.28			20.5	B							22.4	B	
Main	Mission	Market	3	N	0.13		•	9.8	D	8.4	E	6.7	F	7.7	E	5.4	F	E to F
Market/ Portola	Sloat	Santa Clara	3	E	0.41		•	16.5	C					15.9	C			
	Santa Clara	Sloat	3	W	0.41	11.8	D	22.2	B					18.4	C			
	Santa Clara	Clipper	3	E	2.45		•	23.6	B					37.4	A			
	Clipper	Santa Clara	3	W	2.45		•	19.6	B					35.7	A			
	Clipper	Castro	3	E	1.67		•	34.1	A					30.9	A			
	Castro	Clipper	3	W	1.67		•	27.0	A					24.7	B			
	Castro	Guerrero	3	E	0.80		•	15.0	C					9.2	D	14.8	C	D to C
	Guerrero	Castro	3	W	0.80		•	16.5	C					11.5	D	13.2	C	D to C
	Guerrero	Van Ness	3	E	0.42	8.3	E	17.9	C					7.4	E	6.7	F	E to F
	Van Ness	Guerrero	3	W	0.42	8.3	E	12.5	D	8.0	E	10.8	D	11.1	D	24.8	B	D to B
	Van Ness	Drumm	3	E	1.76	9.6	D	12.9	D	6.3	F					8.7	E	F to E
	Drumm	Van Ness	3	W	1.76	9.6	D	15.5	C							10.0	D	C to D
Masonic	Pine	Geary	3	S	0.27	8.5	E	9.3	D	12.7	D	16.9	C					
	Geary	Pine	3	N	0.27	8.5	E	21.5	B							15.1	C	B to C
	Geary	Page	3	S	0.73	10.0	D	13.4	C							16.3	C	
	Page	Geary	3	N	0.73	10.0	D	13.6	C							11.9	D	C to D
Mission/ Otis	Embarcadero	3rd Street	3	S	0.73	9.7	D	7.6	D	13.0	C			10.7	D	9.7	D	
	3rd Street	Embarcadero	3	N	0.73	9.7	D	15.9	C					5.1	F	10.7	D	F to D
	3rd Street	9th Street	3	S	0.98		•	19.1	B					12.1	D	12.3	D	
	9th Street	3rd Street	3	N	0.98		•	19.9	B					13.5	C	9.7	D	C to D
	9th Street	14th Street	3	S	0.67	9.7	D	14.9	C					16.7	C			
	14th Street	9th Street	3	N	0.65		•	12.2	D	9.9	D	9.2	D	10.5	D	8.5	D	
	14th Street	Cesar Chavez	3	S	1.37	10.9	D	14.9	C					13.2	C			
	Cesar Chavez	14th Street	3	N	1.37	10.9	D	10.5	D	12.3	D	13.0	C	14.7	C			
	Cesar Chavez	Ocean	3	S	1.94		•	15.6	C					14.7	C			

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 96	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
	Ocean	Casar Chavez	3	N	1.94		•	17.3	C					18.5	C			
	Ocean	Sickles	3	S	1.88		•	15.1	C					24.9	B			
	Sickles	Ocean	3	N	1.80		•	18.1	C					22.0	B			
Montgomary	Broadway	Bush	3	S	0.38	6.2	F	2.4	F							12.4	D	F to D
North Point	Van Ness	Columbus	3	E	0.38		•	15.4	C							7.4	E	C to E
	Columbus	Van Ness	3	W	0.38	8.5	E	20.9	B							10.4	D	B to D
North Point	Columbus	Embarcadero	3	E			•	14.5	C							11.4	D	C to D
	Embarcadero	Columbus	3	W			•	16.9	C							12.2	D	C to D
Oak	Stanyan	Lyon	3	E	0.64		•		~							3.7	F	
	Lyon	Divisadero	3	E	0.27	7.5	E		~							8.8	E	
	Divisadero	Fillmore	3	E	0.36		•		~							16.9	C	
	Fillmore	Laguna	3	E	0.27	8.2	E		~							15.3	C	E to C
	Laguna	Franklin	3	E	0.27		•	23.1	B							13.3	C	B to C
	Stanyan	Divisadero	3	E	0.91			21.6	B							15.6	C	B to C
	Division	Laguna	3	E	0.63			20.1	B							15.6	C	B to C
	Laguna	Franklin	3	E	0.27			23.1	B							13.0	C	B to C
Ocean	19th Avenue	Miramar	3	E	1.10		•	17.1	C							9.4	D	C to D
	Miramar	19th Avenue	3	W	1,10		•	14.6	C							8.8	E	C to E
	Miramar	Howth	3	E	0.48	0.8	F	21.0	B							10.7	D	B to D
	Howth	Miramar	3	W	0.48	6.1	F	14.9	C							9.1	D	C to D
O'Farrell	Gough	Mason	3	E	0.93	5.7	F	13.7	C							12.6	D	C to D
	Mason	Market	3	E	0.27	6.9	F	7.9	E							4.2	F	E to F
Pine	Market	Keamy	3	W	0.38	4.6	F	10.8	D	7.3	E	10.3	D	6.7	F	8.0	E	F to E
	Kearny	Leavenworth	3	W	0.63		•	12.9	D	19.8	B					17.1	C	B to C
	Leavenworth	Franklin	3	W	0.46	4.8	F	13.2	C							9.4	D	C to D
	Franklin	Presidio	3	W	1.26		•	15.3	C							19.2	B	C to B

Table II

Results of Roadway Level of Service (LOS) Monitoring - P.M. 1991-2001

Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3	AvSp 95	LOS 95	AvSp 97	LOS 97	AvSp 99.0	LOS 99	AvSp 2001	LOS 2001	2001 LOS Changes
Potrero	Division	21st Street	3	S	0.80		*	22.6	B					18.8	C			
	21st Street	Division	3	N	0.80		*	21.4	B					19.3	B			
	21st Street	C. Chavez	3	S	0.61	4.8	F	13.7	C					19.1	B			
	C. Chavez	21st Street	3	N	0.61		*	23.8	B					14.5	C			
Richardson - See Lombard																		
Skyline	Sloat	County Line	3	S	2.32		*	42.1	A							36.6	A	
	County Line	Sloat	3	N	1.92		*	44.9	A							42.6	A	
Sloat	Skyline	J. Serra	1	E	1.36		*	19.2	D	24.9	C					19.9	D	C to D
	J. Serra	Skyline	1	W	1.34		*	23.2	C							27.4	C	
Stanyan	Fulton	Turk	3	N	0.19	4.6	F	10.8	D	11.6	D	16.8	C					
	Turk	Fulton	3	S	0.19		*	7.6	D	10.5	D	8.0	E	13.3	C			
Sutter	Market	Mason	3	W	0.56		*	7.3	E	12.4	D	12.7	D	8.0	E	12.7	C	E to C
	Mason	Gough	3	W	0.87	9.0	D	17.0	C							14.6	C	
	Gough	Divisadero	3	W	0.82		*	16.6	C							14.3	C	
	Divisadero	Gough	3	E	0.82		*	15.4	C							12.8	C	
Turk	Market	Hyde	3	W	0.37		*	14.9	C							7.3	E	C to E
	Hyde	Gough	3	W	0.45	8.7	E	14.9	C							9.1	D	C to D
	Gough	Divisadero	3	W	0.82		*	27.1	A							18.0	C	A to C
	Divisadero	Stanyan	3	W	0.91		*	19.2	B							14.6	C	B to C
	Stanyan	Divisadero	3	E	0.91		*	14.9	C							16.4	C	
Van Ness/ SVanNess	Lombard	Washington	3	S	0.58		*	17.7	C					14.5	C	12.8		
	Washington	Lombard	3	N	0.58		*	13.2	C					18.0	C	26.1		
	Washington	Golden Gate	3	S	0.83	4.6	F	11.7	D	7.0	E	8.4	E	9.7	D	10.0	D	
	Golden Gate	Washington	3	N	0.83		*	15.1	C					11.4	D	12.8	D	
	Golden Gate	13th	3	S	1.21	4.6	F	6.9	F					23.1	B			
	13th	Golden Gate	3	N	1.21		*	13.7	C					18.3	C			
	13th	Cesar Chavez	3	S	1.39	12.6		18.2	C					18.9	C			
	Cesar Chavez	13th	3	N	1.39			22.4	B					16.9	C	26.1		
Washington	Drumm	Kearny	3	W	0.28		*	10.3	D	12.5	D	8.0	E	9.5	D	18.4	C	D to C
West Portal	Ulloa	Sloat	3	S	0.38		*	18.2	C							11.3	D	C to D
	Sloat	Ulloa	3	N	0.38		*	17.1	C							11.6	D	C to D

Table II

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FREEWAY SEGMENTS INBOUND																		
I-280	C & C Limit	US 101		E	4.14	54.9	C	59.1	B					0.0		45.0	D	B to D
	U.S. 101	6th/Brannan		NE	3.36	section	closed	46.3	D	51.0	D	48.6	D	38.6	E	38.9	E	
US 101	C & C Limit	I-280		N	1.81	20.6	F	72.4	A							43.2	D	A to D
	I-280	I-80		N	2.28	24.6	F	45.8	E	31.8	E	40.9	E	6.2	F	24.0	F	
	I-80	Fell/Laguna		NW	1.64	12.2	F	15.3	F							section	closed	
I-80	Treasure I.	Fremont		S	2.13	27.5	F	26.3	F							31.6	E	F to E
	Fremont	US 101		SW	2.13	18.6	F	21.5	F							24.9	F	
FREEWAY SEGMENTS OUTBOUND																		
I-280	6th/Brannan	US 101		E	3.36	section	closed	22.9	F							30.9	E	F to E
	US 101	C & C Limit		SW	4.14	51.9	D	56.6	B							44.5	D	B to D
US 101	Fell/Laguna	I-80		S	1.32	18.8	F	13.4	F							section	closed	
	I-80	I-280		S	2.28	31.6	E	46.3	D	47.2	D	35.5	E	32.4	E	44.4	D	E to D
	I-280	C & C Limit		S	2.13	48.1	D	51.1	D	30.8	E	39.2	E	49.0	D	41.6	D	
I-80	US 101	Fremont		N	2.13	19.0	F	25.9	F							14.8	F	
	Fremont	Treasure I.		NE	2.13	29.3	F	37.7	E	34.6	E	45.6	E	23.1	F	21.6	F	

NOTE: Average Speed (AvSp) is an indication of the average travel time. All sample times for a segment were averaged to obtain the AvSp.

* indicates the Level of Service 'C' or better for that particular segment

~ Indicates an 'overlap' in segments because of changes in the segmentation boundaries from 1991.

APPENDIX V

Local Land Use Impacts Analysis Guidelines:

The Planning Department's
Interim Transportation Impact Analysis Guidelines for Environmental Review

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PLANNING DEPARTMENT

City and County of San Francisco 1660 Mission Street San Francisco, CA 94103-2414

(415) 558-6378 PLANNING COMMISSION FAX: 558-6409 ADMINISTRATION FAX: 558-6426 CURRENT PLANNING/ZONING FAX: 558-6409 LONG RANGE PLANNING FAX: 558-6426

January 13, 2000

TRANSMITTAL MEMORANDUM

TO: Members, San Francisco Planning Commission
& Other Interested Parties

FROM: Hillary E. Gitelman, Environmental Review Officer

THRU: Gerald G. Green, Director of Planning

RE: **Transportation Guidelines for Environmental Review**
(For Your Information -- No Hearing Scheduled)

Planning Department staff has completed phase one of a two-phase process to update the Department's Transportation Guidelines. The phase one update has been included in an Interim document, which document is attached to this memorandum for your use and information.

As you are aware, the Department's Transportation Guidelines were last published in 1991, and are used by staff and consultants to guide their preparation of background transportation studies required during the environmental review of proposed projects in San Francisco. *The Guidelines do not set policy, but establish procedures to ensure the consistency, relevance, and accuracy of each transportation analysis* that the Department prepares, or that consultants prepare at the Department's instruction.

The update of the 1991 version of the Guidelines was undertaken at the Commission's suggestion, as envisioned within the Department's last budget and work program. Over the last year, transportation planners within the Planning Department have met with representatives of the City's Department of Parking and Traffic, MUNI, and the County Transportation Authority, regarding the update, and have solicited input from the transportation consultants who most use the Guidelines. We have also presented our work-in-progress to a subcommittee of SPUR, and continue to be interested in receiving any feed-back that can make this technical and procedural information more useful to those who prepare background transportation studies and to those who use them.

During phase one of the Guideline's update, we have clarified some of the procedures by which transportation studies are prepared, requested that some additional background information be included in each study, incorporated sections of the 1994 Citywide Travel Behavior Survey that have been in use for some time, and clarified the required analysis and presentation of transit information. As part of phase two, which is currently underway, we are considering changes to some of the quantitative standards and methodologies within the 1991 Guidelines. Changes being considered include some derived from current industry practices in other parts of the country, and some which are intended to refine our assessment and presentation of data specific to San Francisco. We will provide you with a copy of the phase two update, and thus the completed version of the Revised Guidelines, later this year.

Please don't hesitate to call Fred Ridel 558-6399 or myself 558-6381 if you have any questions regarding this information or the attached materials. Written comments regarding the Phase One update, or suggestions regarding the contents of Phase Two, should be sent to Fred Ridel's attention at the Planning Department, 1660 Mission Street, San Francisco, CA 94103

INTERIM
TRANSPORTATION IMPACT ANALYSIS GUIDELINES
FOR ENVIRONMENTAL REVIEW

Interim Edition
January, 2000

The Planning Department
City and County of San Francisco

TABLE OF CONTENTS

I. Introduction

These interim guidelines are a partial update of the *Guidelines for Environmental Review: Transportation Impacts,* July, 1991 (*1991 Guidelines*). Some sections of the update are still under review and will be added at a later date. Until that time, certain sections of the *1991 Guidelines* will be referenced and used in these interim guidelines (*Interim Guidelines-2000*). The *Guidelines* are intended to aid consultants in preparing transportation impact analysis for environmental evaluation, including both Environmental Impact Reports (EIRs) and Negative Declarations. In those cases where a transportation study is required for environmental analysis, it is normally necessary that a separate transportation report be prepared, based on these guidelines, as background for the Negative Declaration or EIR.

The Planning Department will make a determination whether a transportation study and report are necessary. In most cases, the department evaluates conditions in the PM peak hour of the PM peak period (4:00 to 6:00PM). This period was chosen because it is the time period when the maximum use of much the transportation system occurs. It is also the time when most of the transportation system capacity and service is at a maximum. Generally, a transportation report may be required for an environmental analysis if one or more of the following conditions apply. Not all conditions apply to all projects.

1) The project would potentially add at least 50 PM Peak Hour person trips;

2) The project would potentially increase existing traffic volumes on streets in its vicinity by at least 5 percent;

3) The project would potentially impact nearby intersections and/or arterials which are believed to presently operate at LOS "D" or worse;

4) The project would provide parking which would appear likely to be deficient relative to both the anticipated project demand and code requirements by at least 20 percent;

5) The project has elements which have potential to adversely impact transit operations or the carrying capacity of nearby transit services;

6) The project has elements which have potential to adversely affect pedestrian safety or the adequacy of nearby pedestrian facilities;

7) The project would not fully satisfy truck loading demand on-site, when the anticipated number of deliveries and service calls may exceed ten daily.

Transportation reports shall be prepared by qualified consultants, working at the direction of the Planning Department staff. The purpose of the transportation study is to provide the comprehensive information necessary to identify the transportation issues and impacts of a project (including those of importance and significance), and provide potential solutions or mitigations to problems and significant impacts in the context of the overall policies and objectives of the City.

II. Overview of Process and Procedures

These guidelines update and revise the *Guidelines for Environmental Review: Transportation Impacts,* July, 1991 (*1991 Guidelines*), and supersede all previously published transportation analysis guidelines. This document reflects the most current data available regarding San Francisco travel characteristics. A major portion of the analysis guidance is based on the findings of the "*Citywide Travel Behavior Survey - Employees and Employers*" (May, 1993), the "*Citywide Travel Behavior Survey - Visitor Travel Behavior*" (August, 1993), and updates or enhancements to those reports. In addition, the *Guidelines* employ certain findings and assumptions from major San Francisco study reports, including those for: Mission Bay (Case No. 96.771E; EIR certified September 17, 1998); the Transbay Area Plan (Case No. 97.123); and Van Ness Avenue (Case No. 87.586; EIR certified on December 17, 1987). The data in the Department's Citywide Travel Behavior Study (CTBS) was subsequently confirmed by the *1995 Citywide Travel Behavior Study* that was sponsored by the San Francisco County Transportation Authority.

It should be noted that these are only guidelines. It must not be assumed that the information provided herein constitutes a complete scope of work for any transportation analysis. The *Guidelines* provide a broad overview, while individual transportation study scopes of work are required to provide a level of detail tailored to fit the size and complexity of transportation issues associated with particular projects. Moreover, once a scope of work is prepared and approved under the direction of the Planning Department, the specific direction contained within that scope will provide a more precise focus than that which appears in these *Guidelines.*

For clarification, the following represents an overview of the process involved in the preparation of a transportation impact analysis for environmental review purposes. No estimate or assumption is made or inferred regarding time lines for the various steps.

(1) The project sponsor or a designated representative files an Environmental Review (EE) application with the Planning Department following the instructions contained in that application form (available at the Department and on-line). When the application is accepted by the Department, a case number is assigned and a staff person from the Department's Major Environmental Analysis section is designated as the coordinator for environmental review. This individual will likely be different than the staff person handling the Transportation Impact Report. All Department staff assigned to the project will coordinate activities throughout the review process. Filing for environmental review generally (but not always) precedes starting the review of transportation issues.

2) Determination concerning whether a transportation impact report is required is based on the scale, location, and/or potential level of activity of the proposed project. To make this determination and/or to prepare a transportation work scope, if one is required, the project sponsor should provide the following information to the assigned environmental coordinator or to a senior transportation planner in the Major Environmental Analysis section:

- existing and proposed specific gross square footage of space for each commercial use (office, retail, restaurant, hotel (including number of rooms), industrial, etc;
- existing and proposed number and type of housing units (includes live/work) including the number of single and multiple bedroom units, and senior, affordable, rental, or owner-occupied designations;
- existing and proposed amount of off-street parking and loading space, including specification of supply relative to Planning Code requirements;
- existing and proposed location of driveways and site plan showing access to off-street parking and/or loading;
- location of bus stops and curbside loading zones along the property's frontage.

Upon receipt of the above material, Department staff will determine whether a transportation study is required. This decision is generally based on factors such as those articulated in the introduction to these *Guidelines*, and to staff's knowledge of transportation issues in the site vicinity.

(3) If it is determined that preparation of a transportation report is warranted, a transportation scoping meeting will be scheduled with the transportation planner, the environmental staff coordinator (other Department staff may also be involved), the project sponsor, and the transportation consultant and environmental consultant hired by the project sponsor. The scoping meeting will determine the specific issues to be examined in the transportation impact report and determine other parameters as defined in these guidelines.

All fees are to be paid by the project sponsor to the Planning Department for the review of the Transportation Impact Report prior to scheduling a transportation scoping meeting for the project. The amount of these fees can be obtained from Department staff. (See Figure 1 in Appendix A for details on this process.)

(4) The transportation consultant will then prepare a draft transportation scope of work for Departmental review and revision(s), if necessary, for final approval. No work should be initiated by the transportation consultant until

a written scope of work has been approved by the Department, including the assigned transportation and environmental planners, by transmittal to the consultant of the Planning Department approval form. (See Figure 2 in Appendix A)

The Department will make every reasonable effort to anticipate and include in the scope of work typical concerns of other City agencies. However, it is not possible for the Department to anticipate all issues and concerns which later may be raised by other City Departments such as the Municipal Railway (MUNI) or the Department of Parking and Traffic (DPT). Ultimately, the scope of work may need to be revised after its approval so that it adequately addresses relevant issues raised by all other City agencies and other relevant issues that may arise in the course of preparing the study report. Any contractual arrangement between the project sponsor and its consultant preparing the transportation report should reflect the flexibility to address the above issues as they are raised.

(5) Based on the approved scope of work, the transportation consultant conducts the required analysis independent of the project sponsor, and submits five copies of all drafts directly to the environmental project coordinator for review, comment, and approval. Two copies will be used within the Planning Department, one copy will be provided to MUNI, another to the Department of Parking and Traffic, and the last copy will be available for other relevant agencies. It is recognized that more than one submittal of preliminary transportation findings will normally be necessary in order to achieve a satisfactory final transportation report. Under normal circumstances, two drafts of a transportation study will be required before it is accepted as final. The Planning Department staff will provide consultants with a coordinated set of comments from all City reviewers on each draft. Consultants should revise draft reports to reflect City comments as directed, and should provide a detailed written explanation if any comments are not reflected in subsequent submittals.

(6) Pertinent information from the final transportation report will be summarized for inclusion in an Environmental Impact Report (EIR) or Negative Declaration. The specific information to be extracted and summarized for inclusion in an EIR or Negative Declaration, will be determined on a case-by-case basis under the direction and guidance from the environmental staff person assigned to the project.

The selection of the transportation consultant is at the discretion of the project sponsor, contingent upon submittal of an acceptable work scope to Department staff. The consultant's work effort is, however, to be entirely under the direction of the assigned Department staff. All submittals by the consultant are to be made directly to the assigned coordinator of the overall environmental review in the Department's Major Environmental Analysis section. Any comments by the project sponsor or its representatives must be directed to Department staff rather than to the environmental and/or transportation consultants to ensure the objectivity of the analysis. The role of the project sponsor and its representatives during the preparation of the transportation report should be limited to provision of details concerning the project, response to recommended changes affecting project circulation, and indication of support or lack of support for recommended mitigation measures and other transportation improvements identified in the impact report.

Transportation analysis can be a complex and lengthy process. The Department strongly advises that it begin as early as possible, to avoid unnecessary delays. The Department also recommends that the consultant follow the explicit parameters found in the scope of work.

III. Study Report Preparation Guidelines

Each transportation impact report is to follow a consistent format, as presented here, and include all of the elements and information presented in these *Guidelines*. The appropriate level of detail needed for each project's transportation impact analysis with respect to particular issues will be specified in the transportation work scope developed at the scoping meeting. When these *Guidelines* are referenced in a transportation study report, we suggest using either the full title and date, or the notation "*Interim Guidelines-2000*," so the version is properly identified.

1. Project Description

All analyses must include a detailed project description. This information is to be presented as the first section of the document. The project description must include the following information:

- Case file number for the project, as assigned by the Department.
- Location of the project site, address, Assessor's Block and Lot number(s), cross streets, and Superdistrict or C-3 District (Refer to Appendix A for maps showing the Superdistricts and the C-3 District).
- Figure showing the site plan.
- Existing and proposed total gross square footage for each land use type and the number of units for residential, hotel/motel, and live/work projects including the net changes in each type of use.
- Existing and proposed estimated number of employees and/or dwelling units by type of use, including net changes, if available.
- Existing and proposed number of off-street parking spaces and whether any on-street or off-street parking spaces will be removed as a result of the project.

- Existing and proposed number of off-street and on-street freight loading spaces as well as any proposed changes affecting on-street loading spaces.

- Description and plans for use (if any) of public rights-of-way by present or proposed uses, either above or below grade (e.g., air rights, surface or subsurface revocable permits, etc.) including sidewalk width changes, changes in width or number of traffic lanes, function of lanes in terms of traffic channelization, and/or direction of travel. Also include new facilities.

- Detailed plans showing vehicular and pedestrian site access, including location of curb cuts for both existing and proposed uses, and internal vehicular circulation, presented in standard architectural or engineering scale.

- Figure identifying parking spaces, the proposed egress and ingress to the parking garage or lot, the circulation pattern within the parking facility and the number and location of parking spaces for the disabled.

- Figure showing the location, dimensions and access to the off-street freight loading spaces as well as the on-site location for trash and garbage storage.

- Identification of all transportation-related approval actions required by any City department including use permits, variances, encroachment permits, and changes in public rights-of-way. Describe the specific action.

- Identification of the location, number and type of bicycle parking spaces provided, including those for messengers.

- If the information is readily available, include the lot area, existing and proposed zoning, and a figure with the location of the lot on the Assessor's Block.

2. Project Setting

The setting information shall be presented immediately following the Project Description as a discrete chapter or report section. The goal is to provide a brief but complete description of existing transportation infrastructure and conditions in the vicinity of the project. Normally, the described vicinity is a radius between two blocks and 0.25 mile, however, a larger area may be determined in the scoping process.

The specific perimeters of the study area, for both setting and project impact analysis, are to be confirmed as part of the approval for the scope of work. It should be noted that when the boundaries of a study area are determined in a scope of work, the project area should include both sides of the streets designated as the project boundaries unless otherwise specified (e.g., for on-street parking surveys). Sometimes the study area differs for different purposes, e.g., traffic vs parking.

The Setting section shall include the following text information:

- Street designations and classifications as identified in the Transportation Element of the San Francisco General Plan. These designations can be found on the following maps in the General Plan: Vehicular Street Map; Congestion Management Network; Metropolitan Transportation System; Transit Preferential Streets; Citywide Pedestrian Network; Neighborhood Pedestrian Streets; and Bicycle Route Map.

- A description of the study area streets, including the number and width of lanes, direction of flow, and the presence of peak period tow-away lanes affecting roadway travel capacity, the presence of bicycle routes, and any other significant street information.

- Access to regional highways and freeways, including location of, distance from, and routings to and from on-ramps and off-ramps.

- Description of public transit routes operating on streets within the study area, including: route function (local, express, crosstown, etc.); service areas; hours of service; peak period and headways during that period; and type of vehicle (diesel coach, trolleybus, streetcar, light rail vehicle; etc.). For projects subject to Section 321 of the Planning Code (Office Development: Annual Limit), the report must specifically identify, by operator, all lines within 1/4, 1/3, and 1/2 mile radii of the site.

- Level of Service (LOS) analysis for existing conditions for the specific intersections identified in the scope of work for the PM peak hour or other hours if specified in the scope of work. Unless otherwise specified, the operations method of the Highway Capacity Manual (HCM) shall be used in the analysis of intersections. The date on which the data was collected for the analysis must be specified in the text and on the calculation sheets. The methodology for the calculation of the LOS for various types of intersection controls is provided in the Appendix B. A qualitative discussion of the observed operation of the intersections should supplement the LOS data.

- Actual and effective widths of sidewalks immediately adjacent to the project site. For areas where the sidewalks are absent or known to be deficient, the official sidewalk width should be included. (Information on the official or legislated widths is available from Department of Public Works, Maps and Surveys.) For the streets immediately adjacent to the project site, include the location of fire hydrants, light poles, MUNI poles, traffic control devices, and other significant physical items between the curb and property line

- Characteristics of parking within the study area (typically within a two-block radius of the site, but as determined in the approved scope of work), including the number of on-street parking spaces, control of on-street parking (e.g., meters and time limits, yellow, white, blue, green, and special zones such as carpool/vanpool loading or parking, special and neighborhood residential permit parking, motorcycle parking, etc.) number of off-street parking facilities and spaces (public and private), and whether off-street parking is provided as independently-accessible stalls or tandem/stacked valet operation. On-street and off-street parking occupancy information should be provided for the time period(s) specified in the scope of work. Any special circumstances affecting the availability of parking in the vicinity of the proposed project (e.g., periods of peaking in parking demand, and large generators of localized parking demand, such as a major institution).

The Setting section shall also provide graphics, including:

- Street maps of the study area showing: street names, number and direction of lanes; transit service by line number and with stop locations identified; the location and amount of parking facilities, and the location and class of bicycle routes. For projects subject to Section 321 of the Planning Code, the transit map is to show transit lines and stops within 1/4, 1/3 and 1/2 mile radii lines.

3. Travel Demand Analysis

Travel demand analysis shall include textual information, supported by tables or figures detailing the project's trip generation, trip distribution, trip assignment and modal split characteristics.

Net new travel demand generated by the project is to be estimated, based on the difference between existing and proposed land uses. Person trip generation rates per unit of square footage for each land use, or other unit as shown in Appendix 1 of the *1991 Guidelines*, which are replicated in Appendix C. These rates are to be used for estimating levels of activity for the proposed project. Since no single source or analysis provides, by itself, an adequate means to define trip generation for all the situations encountered in San Francisco, trip generation rates may sometimes need to be determined by other means, such as surveys of similar land uses, if so specified in the scope of work.

To "net-out" existing land uses that will be replaced, the existing levels of trip activity should, in most cases, be based on actual observations rather than on estimates based on rates in these *Guidelines* or other sources.

Each analysis should apply the trip generation rates from the *Guidelines* individually to the proposed uses, compare the proposed trips to existing levels of trip activity, and show the differences ("net new") by land use and in aggregate.

The Travel Demand Analysis is to include the following, unless otherwise directed in the work scope (Note that different or additional analysis periods may be defined in the scope of work process.) :

- Trip Generation Information: Project trip generation information (total person trips) by land use for existing and proposed uses. The total unadjusted daily and P.M. peak hour trips by mode can be calculated. The number of daily and peak hour vehicles (autos) generated by the project should also be calculated by using the auto occupancy rates noted in the tables in Appendix E.

- Work and Non-Work Trip Generation Information: Since work and non-work trips have different characteristics in terms of distribution and the mode of travel, the number of work and non-work (visitor) trips should be calculated separately. Appendix 2 of the *1991 Guidelines*, as included in Appendix C, provides the information necessary to compute the work and non-work (visitor) trips for a specific land use.

- Trip Distribution, Assignment and Modal Split Information: Net new person trips distributed to various directions of travel and assigned to the appropriate modes of travel (auto, transit, walk, and other) should be calculated, presented in tables and a graphic diagram (for vehicle and transit trips), and discussed in the text. Modal assignments should also be calculated for daily and the P.M. Peak Hour.

The weekday P.M. Peak Period is generally 4:00-6:00, and traffic counts shall generally be conducted during this period, unless otherwise specified in the scope of work. The peak hour must be determined from the counts (normally recorded in 15 minute intervals) for the entire peak period, and should represent the single hour within the peak period with the highest counts. The Planning Department may also request data for other periods to reflect the peak period of trip generation by the land use.

4. Transportation Impact Analysis

Analysis for all projects is to be conducted for project-specific impacts, and for cumulative impacts.

A. Traffic Impacts

Project-Specific Impacts. The project generated traffic impacts must be calculated for intersections identified in the scope of work using the methodologies explained in Appendix B. LOS levels for the specified intersections must be discussed in the text and presented in a table showing existing, existing plus project and cumulative intersection levels of service. The traffic attributable to the project is normally assumed to be included in the cumulative forecast, and should not be added to the cumulative totals. The percent contribution of the project should be shown both as a percentage of the total cumulative traffic, and as a percentage of the growth in traffic (cumulative less existing) for each intersection.

The specific intersections to be analyzed will be identified in the approved scope of work for the transportation analysis, and based on an initial assessment of areas that could be impacted by the project. When a wide area may be impacted, the intersections selected for analysis may only be those that would experience the greatest change or have the greatest likelihood of degrading to an unacceptable LOS with the addition of the project traffic.

Cumulative (Horizon Year) Impacts. The transportation impact analysis should present and discuss the cumulative traffic impacts. The horizon year (normally 10 to 20 years in the future, depending on the location) should be used for the cumulative analysis year unless otherwise specified in the scope of work. The analysis is to assume a growth factor of one percent per year for "background" traffic, unless an areawide cumulative forecast is defined during the scoping process. Traffic generated by the project, and by nearby projects when applicable, are to be expressed as a percentage of this overall growth factor. If the localized share seems to represent a sizable share of the anticipated overall horizon year growth, the consultant will need to discuss the issue with Department staff who will determine the appropriate methodology and an approach to determining the significance of the project's contribution to cumulative conditions.

B. Transit Impacts

The specific methodology for analyzing transit impacts is included in Appendix F. For projects within the greater downtown area (C-3, SOMA and Mission Bay districts), the methodology for the cumulative (horizon year) condition for MUNI and the regional transit operators uses an approach based on a screenline analysis. For projects outside the greater downtown area, the level of analysis will depend on the nature of the project and the transit service within the study area.

Transit trips, as determined by the travel demand analysis outlined in Section 3, need to be assigned to transit routes (aggregated or individual) based on the trip distribution data, and in accordance with the transit analysis methodology outlined in Appendix F. Trips on both MUNI and regional carriers must be accounted for. The normal evaluation requires a determination of the loading at maximum load points in relation to the available capacity for the existing, existing plus project, and possibly a cumulative condition. The frequency and load standards of the affected transit vehicles needs to be known if not contained within the aggregated data. Similar to traffic impact analyses, the focus is on conditions for the p.m. peak hour, although transit data is often reported for the p.m. peak period. Net new transit trips generated by the project should be cited and also expressed as a percentage of cumulative growth, by operator.

Any transit analysis needs to consider the access to transit service from the project site. Normally, transit riders need to walk to a transit stop or station from the project site. This walk trip can influence the choice of a particular line, or even the mode itself, especially if the walk link is a difficult or unpleasant experience due to inadequate sidewalks, unsafe pedestrian crossings or other related circumstances. The analysis should determine whether sidewalk improvements or other pedestrian-related improvements are necessary in order to provide adequate access to transit service. Also, any potential transit conflicts or delays resulting from site-related activities (such as auto traffic) need to be examined and described.

C. Parking Impacts

Parking supply, parking demand, and Code-required parking should be clearly distinguished. If there is already existing parking on the site, the amount of net new parking should be noted. The project's parking supply is the amount of on-site parking spaces provided by the project that will be available for use by the project's residents, employees or visitors. Parking demand is the amount of daily parking need generated by the proposed uses. The Code required parking is the number of parking spaces required by Section 151 of the San Francisco Planning Code for the proposed uses.

Project parking demand is to be calculated for long-term demand (employees) and short-term demand (visitors) for commercial projects, and for resident parking demand for residential projects.

In some situations (e.g., when overlapping work shifts of the project or adjacent uses cause an accumulation of parking demand greater than the daily average total), accumulated peak parking demand should also be quantified.

Parking demand for commercial projects should be generally calculated based on the number of auto trips and auto occupancy rates from Appendix E or CTBS tables for each superdistrict. Turn-over rates should be taken into consideration in calculating the daily short-term parking demand. Appendix 5.1 and 5.2 of the *1991 Guidelines,* as included in Appendix G, explain the parking demand calculations in more detail. In cases where more accurate information about parking demand and employee shift changes are available, this information may be used instead of the Appendix E or CTBS tables, if incorporated in the scope of work.

Residential parking demand should be calculated based on the information provided in Appendix 5.1 of the *1991 Guidelines*, as included in Appendix G.

If a proposed project would displace existing parking, the report should identify:

1) the amount of parking which is required parking for the current uses on-site;

2) the amount of parking which is accessory parking to an off-site use; and

3) the amount of parking which is available to the general public (specifically identify as: short term; long-term; independently accessible; or valet parking.)

Project parking demand (including, if appropriate, demand for parking displaced) should be compared to the amount of parking provided by the project (supply), and the parking required by the Planning Code.

Deficiencies or surpluses in the number of parking spaces relative to demand and/or Code requirements should be quantified. The manner in which any parking deficiency will be addressed, and its impact on the existing on-street and off-street parking supply in the study area, should also be identified.

The impact of any deficiency in parking supply relative to the estimated demand, including current users of public parking to be displaced by the project, should be quantified in terms of the estimated increase in occupancy of available on-street and off-street facilities. As a general standard, a facility with a 95 percent occupancy rate may be considered to be at capacity.

The amount of parking to be provided for bicycles and the disabled should be cited and compared with Code requirements. Any designated on-street parking spaces for the disabled that may be used by those accessing the project should be noted.

Parking access (ingress and egress) should be identified and the dimensions noted. Any impacts or conflicts of parking access with Transit Preferential Streets, other streets identified in the General Plan, streets identified for full or partial priority for pedestrians, and any potential conflicts affecting transit, pedestrian or vehicular flow should be identified. In cases where there are exceptional peaks in the traffic entering or leaving a garage, a queuing analysis may be necessary.

Any special circumstances affecting the availability of parking in the vicinity of the proposed project as identified in the Setting Section are to be taken into consideration in the analysis and noted.

D. <u>Pedestrian Impacts</u>

Pedestrian conditions and the project impact should be discussed qualitatively or quantitatively based on the project size and existing circumstances. The Planning Department will determine if a qualitative or quantitative analysis is necessary.

If a quantitative analysis is required, pedestrian trips generated by the proposed project should be estimated for P.M. Peak Hour, plus the peak period of pedestrian activity for the immediate area (often in the midday), and/or the proposed project's peak period of trip generation. Level of Service conditions, when appropriate, for existing and existing plus project scenarios are to be calculated. Pushkarev and Zupan *Pedestrian Level of Service Standards and Methodology for Average Flow Characteristics Related to Flow In Platoons,* or the Highway Capacity Manual methodology (Chapter 13), are considered acceptable methodologies for the analysis; appropriate references are to be included. Midblock sidewalk pedestrian Level of Service analysis may, in some situations, be requested in addition to Level of Service analysis at pedestrian crosswalk (intersection) locations.

Pedestrian safety issues related to the project should be assessed. The study should examine potential conflicts between pedestrian movements at driveways, localized pedestrian hazards and, more generally, between pedestrians and vehicles.

Pedestrian access to the project by the disabled should be discussed. Points of ingress and egress that are accessible to the disabled should be identified. Also, accessible curb-cuts or ramps, and other on-street aids for the disabled, on the adjacent streets should be noted.

E. Bicycle Impacts

The existence of current or future bicycle facilities in the area should be identified from the San Francisco Bicycle Plan and by consultation with The Department of Parking and Traffic. The analysis should examine possible impacts on bicycle traffic on the streets in the vicinity of the project. This would include potential conflicts between auto, truck and bus traffic serving the project during loading and unloading, and potential conflicts due to turning movements across bicycle lanes or routes. Potential barriers or hazards to safe bicycle operations near the project should also be identified. Other conditions that may have a notable negative or positive impact on use, such as bicycle parking or the provision of shower facilities, should also be stated.

If sufficient bicycle traffic exists or is anticipated on a study area street, it may be necessary to include a quantitative analysis of the impacts using the methodology in Chapter 14 of the HCM, or some similar technique.

F. Freight Loading and Service Impacts

Off-street truck loading requirements should be specified according to the Planning Code. The analysis should include a description of the frequency of the service deliveries and the estimated mix in the types of vehicles that will be utilized in the freight loading activities for the project. If the it is expected that the project will attract a high level of courier and other service deliveries, the report should discuss how these will be accommodated. The analysis of the project should compare the amount of loading space provided by the project (supply) with truck loading demand generated by the project and with the off-street freight loading requirements in the Planning Code.

Project truck loading demand and service rate for the peak loading period (which should be specified) and the entire day should be estimated based on proposed uses on the site (using the data shown in Appendix H), and compared with Planning Code requirements and the proposed on-site facilities. The truck loading supply is the number and sizes of off-street truck loading spaces provided by the project on-site. It should be compared to the truck loading demand that the proposed use would generate. The number and sizes of off-street freight loading spaces required should be determined based on Section 152 of the San Francisco Planning Code.

The location, number and dimensions (including vertical clearance) of all spaces provided for freight and service functions, including van size spaces substituted for full size spaces, should be specified in the text and on a figure. The figure should indicate the location of freight elevators relative to all loading and service parking and clearly identify the circulation path between the loading/service stalls and elevators.

If truck loading demand exceeds supply and/or if no off-street loading facilities are proposed to be included as part of the project, a quantification of the resulting impacts (e.g., time of day, number of instances and duration of double-parked vehicles) should be provided, and details should be included regarding how service needs would be accommodated.

Truck turning movements should be analyzed using turning templates. The size of the trucks analyzed should be determined by the character of the use, but should be no less than 30 feet. If truck movements would require backing into or out of the site on public rights-of-way, the resultant delays to traffic, transit vehicles and pedestrians should be characterized.

Truck loading access affecting a Transit Preferential Street, or any street identified in the General Plan for full or partial priority for pedestrians, and any potential conflicts affecting transit, pedestrian or vehicular flow should be identified.

In any case in which a project proposes to rely on curbside yellow loading zones, an occupancy and turnover analysis is to be conducted for existing curbside loading spaces in the immediate vicinity of the project site to estimate the probable availability of such spaces to serve the needs of the proposed project, based on the specific use(s) proposed and area conditions.

G. Passenger Loading Zones

If applicable, the extent of taxi, tour bus, or other types of passenger loading and unloading needs should be specified including details regarding how these functions would be served. Where a porte cochere or other off-street passenger loading area is required or provided, plans should be included showing the location, traffic and parking lanes, adjacent sidewalks, circulation patterns, and all dimensions. Any plans to seek colored, marked curbside areas from the Department of Parking and Traffic should be noted.

For cases in which a project proposes to rely on curbside pedestrian loading zones, an occupancy and turnover analysis for similar curbside passenger loading spaces should be made to estimate the probable availability of such spaces to serve the needs of the proposed project, based on the specific use(s) proposed and area conditions.

H. <u>Construction Impacts</u>

The number of daily and peak period construction truck trips by construction phase should be cited, with proposed truck routings and operating hours indicated.

Any proposed closures or temporary use of pedestrian ways, parking lanes or traffic lanes are to be identified, as well as the extent and duration of such closure or temporary use. Impacts associated with such occupation of public rights-of-way should be quantified, in terms of parking lost, effect on transit operations, loading needs, or temporary degradation in levels of service for intersections and/or pedestrians. The need to remove or move any transit stops should also be noted. For large projects, the staging plans of construction trucks for materials delivery should be cited, and methods for addressing the parking needs of construction workers should be identified.

5. Transportation Mitigation Measures

Transportation reports are frequently used not only for environmental evaluation but also in the conditional use and other permit processes. It is important to recognize the differences between these processes.

There are also cases in which the transportation analysis for a specific project may conclude that significant transportation impacts are unlikely and that mitigation is not required. If the project has impacts, but they are not considered "significant" as defined by CEQA standards, the analysis should clearly state this at the beginning of the significant impacts and mitigation section. These impacts may be referred to as "non-significant" impacts, and the corresponding measures to alleviate them, as "improvement" measures. They may include desirable measures to improve transportation conditions which may be recommended and subsequently included as conditions of approval. Any recommended improvement measures should be listed, accompanied by identification of the appropriate entity responsible for implementation. Such measures are not to be identified as "mitigation" measures.

Mitigation measures required to deal with impacts determined to be environmentally significant according to CEQA standards should be clearly identified as such.

If a mitigation or improvement is proposed for an intersection that will change the Level of Service (LOS), then the corresponding LOS calculation sheets need to be included in the report. The calculation sheet (or an attachment) should identify the parameters that were changed, and what that change is.

Mitigations should be described in enough detail to evaluate their operational and physical feasibility. Proposed roadway changes should be supported with drawings showing roadway dimensions and right-of-way boundaries.

Whenever either type of measure is identified, the following should be cited:

- If the implementation would be the responsibility of the project sponsor, indicate whether the project sponsor supports or fails to support each specific recommendation.

- If implementation would be the responsibility of the City or another agency, the responsible department or agency should be identified and its position on each recommendation should be stated.

- When each measure would be required.

In some unique situations, a cost estimate for a mitigation or improvement measure may be required. Every attempt will be made to identify these cases during the scoping process. If an estimate is deemed necessary, it should be prepared at a "planning level" of detail, which would be more general and less rigorous than a construction cost estimate. Such estimates should indicate the month and year in which they were prepared, so they can be adequately assessed at some future date.

Typical transportation mitigation measures for downtown area projects, to address significant impacts as defined by CEQA standards, are shown in Appendix I. While some of these may be appropriate for projects outside of the downtown area, mitigation measures for such projects would generally be a function of the specific conditions and impacts identified by the transportation study for each project.

A transportation management program and on-site brokerage services are required for office developments of 100,000 square feet or larger (25,000 square feet in the SSO District) that are located in the C-3 or South of Market Districts. (Reference the Zoning Map of the City and County of San Francisco.) An agreement for the transportation brokerage services and a transportation management plan must be executed with the Planning Department prior to the issuance of a permit of occupancy. The transportation study report should recognize this requirement when applicable. The actual transportation management plan need not be included in the study report, but could be added at the discretion of the project sponsor. Appendix J contains the Planning Code requirements for the plan and services.

6. Required Approvals

This section of the report of the report should identify the approvals that would be required in order for the proposed project to proceed. These approvals could relate to transportation issues such as parking, loading, street modifications and similar matters.

Included in this section should be conditional use approvals, variances, discretionary actions, necessary approvals from the Department of Parking and Traffic, the Department of Public Works, MUNI or other relevant agencies (e.g., parking zones, operational changes, street vacations, transit stop modifications). If proposed mitigations also require certain approvals, they should be individually identified using the information from the Mitigation section. If the City Departments have communicated an opinion or recommendation on the proposed actions, it should be noted.

7. Appendices for Inclusion in Transportation Reports

The information contained in the report, including the appendicies, should be sufficient for someone to recreate the analysis and check its accuracy. The following appendices are to be included with all transportation analyses, as appropriate to what was actually analyzed within the report:

- Transportation Study Acknowledgment and Approval form, (Appendix A, Figure A-2) completed by the Planning Department (signed and dated), and a copy of the approved scope of work.

- Complete sets of all required traffic and pedestrian counts and estimated volumes. These should include existing, project, existing plus project, and cumulative conditions, at a minimum. The counts should include the day and date on which the data were collected.

- Complete sets of all traffic and pedestrian Level of Service calculations. Each Calculation sheet should indicate the date on which the data was collected. A listing of the values of the variables used in the calculations should be included, preferably in the format of Table 9-3 in the Highway Capacity Manual (HCM).

- Complete sets of all analysis assumptions (including trip generation rates, transit patronage and capacities, parking turnover rates, mode splits, trip distribution, trip assignment, auto occupancy, etc.)

- Intersection LOS (A -F) definitions and descriptions.

- Pedestrian LOS (A-F) definitions and descriptions.

APPENDIX A

FIGURES: FORMS and MAPS

FIGURE A-1
PROCESS MEMORANDUM

INSTRUCTIONS FOR SUBMITTAL AND FEES
FOR
INITIAL TRANSPORTATION ASSESSMENT, or
TRANSPORTATION IMPACT ANALYSIS REPORT

(1) In order for Department staff to determine whether a transportation study is required please submit the following information concerning the proposed project to the environmental planner assigned to your project in the Major Environmental Assessment (MEA) section or to the MEA's transportation review coordinator, Fred Ridel.

- Existing and proposed specific gross square footage of space for each commercial use (office, retail, restaurant, hotel-including number of rooms, industrial, etc.).
- Existing and proposed number and type of residential units (or live/work units) including the number of single and multiple bedroom units and senior, affordable, rental, or owner-occupied designations.
- Existing and proposed amounts of off-street parking and loading space.
- A site plan showing the existing and proposed locations of driveways.
- Location of bus stops and curbside loading zones along the property's frontage.

(2) This information will be used to determine whether or not a full Transportation Report will be needed for the proposed project and/or in preparation of the appropriate work scope for a full Transportation Report. You will be contacted concerning this determination.

(3) If a transportation report is determined to be required, the project sponsor is to select a transportation consultant who will contact the transportation staff of the Major Environmental Assessment section to schedule a scoping meeting. The project sponsor will submit two checks, one for $5,936.00 payable to the San Francisco Planning Department and one check for $400.00 payable to San Francisco Department of Parking and Traffic (DPT).

(4) Before the scoping meeting is scheduled, both the DPT and the Planning Department checks, and any requested material, should be submitted to:

San Francisco Planning Department
Attn: Tim Blomgren
1660 Mission Street, 5th Floor
San Francisco, CA 94103

(5) Specific questions regarding the transportation review process should be directed to the transportation review coordinator at (415) 558-6399.

FIGURE A-2
APPROVAL FORM

TRANSPORTATION STUDY SCOPE OF WORK
ACKNOWLEDGEMENT AND APPROVAL

Transmittal To: ______________________________ Date: ________________
____
____
____

The proposed scope of work for the ______________________________ Project, Case No.____________________, dated ______________________________ is hereby

_ Approved as submitted

_ Approved as revised and resubmitted

_ Approved subject to comments below

_ Not approved, pending modifications specified below and resubmitted

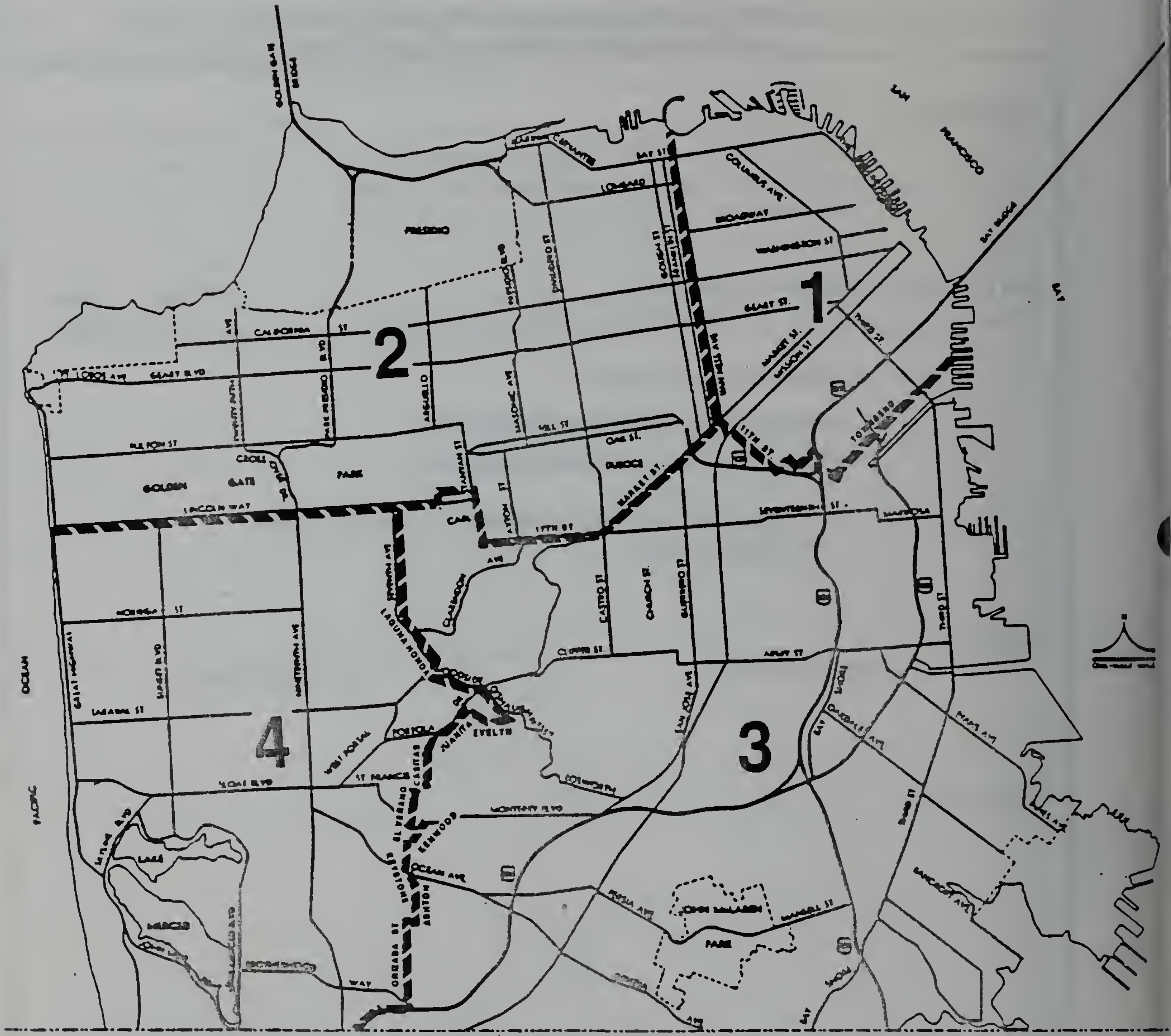
Signed: ______________________________ ______________________________
Transportation *Environmental*

Comments:

Note: A copy of this approval and the final scope of work are to be appended to the transportation study. The Department advises consultants and project sponsors that review of the draft transportation report may identify issues or concerns of other City agencies not addressed in the scope of work hereby approved, and that the scope of work may need to be modified to accommodate such additional issues.

n:\trans\scpform2.doc

FIGURE A-3
SUPERDISTRICT BOUNDARIES

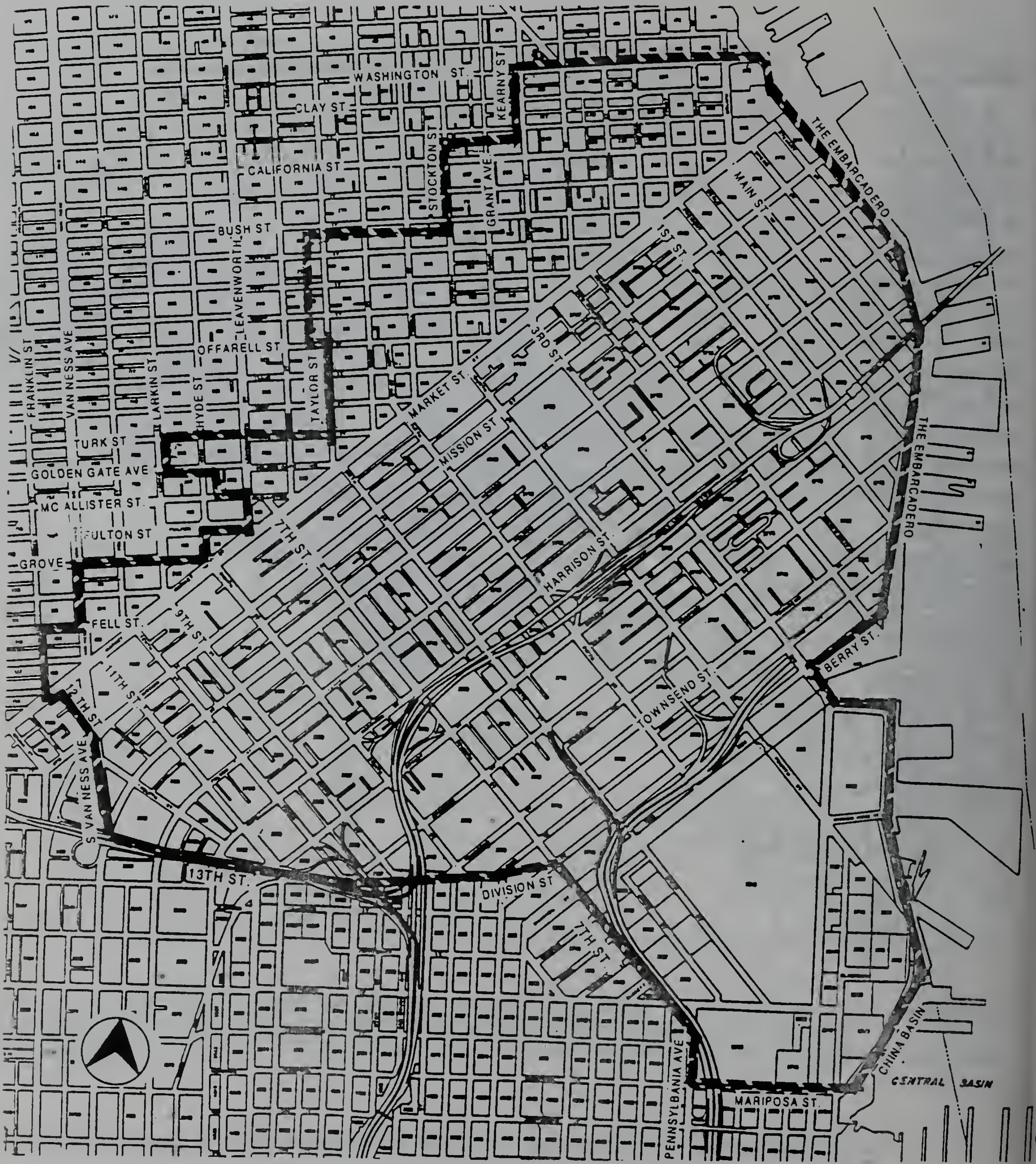


The Superdistricts are based on the travel analysis zones established by the Metropolitan Transportation Commission (MTC). The Superdistricts in this Figure are aggregations of the MTC's 1099 Regional Travel Analysis Zones (1/99).
Data from the Citywide Travel Behavior Study (CTBS) that are used in other sections of this report have been defined in terms of the Superdistricts.

FIGURE A-4
C-3 DISTRICT

Note: The C-3 boundaries are subject change. Check the San Francisco Planning Code for the latest version.

FIGURE A-5
GREATER DOWNTOWN AREA



APPENDIX B

INTERSECTION LEVEL OF SERVICE ANALYSIS METHODOLOGY

INTERSECTION LEVEL OF SERVICE ANALYSIS METHODOLOGY

Each intersection specified in the scope of work needs to be analyzed to determine the Level of Service (LOS) for the alternative conditions or scenarios specified in the scope of work. The three common scenarios are (1) existing conditions; (2) existing conditions plus the proposed project; and (3) a future year condition which reflects cumulative impacts from projected future growth, including that associated with the proposed project. The analysis should follow the methodology presented in the Transportation Research Board's Highway Capacity Manual (HCM), as updated in October 1994. Because sections of the HCM have and are being revised periodically, it may be appropriate in some circumstances to use a later version for the analysis. If that is the case, it will be indicated during the scoping process. Separate chapters of the HCM deal with signalized and unsignalized intersections.

For signalized intersections, the operational analysis technique will normally be used. To retain some level of consistency between the analyses of different projects, at different times and by different consultants, the values for the HCM analysis parameters should be appropriate to the conditions in San Francisco, and should be documented in the report, preferably in the appendix with the LOS calculations. It is expected that there will be differences from the default values, and these should be noted. At a minimum, the values of the parameters listed in Table 9-3 of the 1994 HCM need to be included. The consultant may need to obtain current information on the operating conditions at an intersection from the Department of Parking and Traffic or from other appropriate sources. The data used for the existing signal timing should accurately reflect present conditions. If any changes or revisions are made, they must be fully documented in the section of the report that contains the LOS calculation.

To establish the existing condition, it will be necessary to collect traffic counts for through and turning movements at the appropriate intersections as are defined in the scoping process. In some locations, it may be necessary to distinguish vehicle type (e.g., buses and trucks) in the counts. Traffic counts should be taken on days that are representative of normal traffic conditions. For normal weekday traffic, the counts should be taken on Tuesday, Wednesday or Thursday. For intersections with high volumes or volatility, it may be necessary to take counts on two consecutive days. Some special generators may require counts at a special time, such as a weekend. There should be an awareness of any unusual conditions that may affect the counts, such as accidents, street closures, emergency incidents, traffic diversions and special events. Counts should not be taken in close proximity to holidays and times when commute patterns and volumes may be significantly modified. The nearby location of a special generator may also affect the counts. For example, counts taken near a large university during a semester break would generally not be representative of the normal traffic in the area.

New traffic counts need to be taken when there have been recent changes in area conditions, traffic patterns or traffic volumes. In stable areas, where counts have been collected within the last one or two years, they may still be useful. The use of counts more than two years old needs to be justified. If data is used from past studies, the consultant must indicate the date that the counts were actually taken, not the date of the report. Copies of all counts used in the analysis, and level of service calculations, are to be included with the report as an appendix. The LOS calculation sheets need to include the date that the data used in the calculation was actually collected.

In San Francisco, it is assumed that the P.M. peak hour and P.M. peak period (4:00 to 6:00 P.M.) normally represents the time of maximum utilization of the transportation system. Traffic counts should be taken for the 4:00 to 6:00 P.M. period, and recorded in 15 minute intervals. The peak hour will normally be the sum of the highest four consecutive 15 minute intervals. In order to maintain consistency in traffic volumes for adjacent intersections, it may be necessary to choose a peak hour that is consistent with most of the study area intersections.

In order to obtain the intersection volumes necessary for the "existing plus project" LOS calculations, the consultant must first distribute the projected trips according to the trip distribution percentages available in the tables in Appendix E. The trips then need to be assigned to particular street links and intersections in a path which reasonably connects the origin and destination of the vehicular trip. This requires some judgement and a knowledge of actual operational conditions on the affected streets. It may require specific observations of these conditions during the peak period. For assignments that may be contrary to intuitive conclusions (e.g., the vehicles go on to another intersection to make a turn because the more direct route is too congested) may need to be explained in the text of the report.

Level of Service must also be estimated and shown for the future cumulative conditions, with a horizon year approximately 10 or more years in the future. (The future horizon year should be a benchmark that will eventually change in five year increments, such as 2010, 2015, etc.) The analysis of future cumulative conditions can use one of three basic methods, which will be determined during the scoping process. They are as follows:

(1) A simple application of a growth factor to the traffic volumes.

(2) A planning area study method (i.e., regional growth projection method) where an approved set of neighborhood or areawide growth projections are used, as reflected in a previously prepared transportation analysis. A typical example of the latter is the Mission Bay FEIR. Such studies commonly include the application of a city-wide or region-wide travel demand forecasting model such as that used by the Metropolitan Transportation Commission (MTC).

(3) A listed-based method that incorporates traffic volumes and assignments from a list of reasonably foreseeable projects in the area, including those identified and analyzed in relevant planning or environmental reports.

The first approach as stated above entails the use of a growth factor for travel in the general geographic area of the project site. The background growth rate for projects using this approach should be one percent per year. This growth factor will generally assume that net new travel attributable to the project is included, such that it will not normally be necessary to add project travel to the growth rate. If, however, the volumes with the growth rate are less than those in the existing plus project condition at a particular intersection, consult with Department staff for further direction.

In the second case, the planning study area method, it normally is assumed that the proposed project is included in the cumulative forecast for the larger study. In some cases, it may be necessary to analyze the localized impacts of the project in more detail than was presented in the areawide study. Specific intersections may have impacts that were not anticipated in the original, more generalized areawide study.

In the last method, a project list-based approach, a study area is defined which is expected to capture the impacts relevant to the proposed project. A list of projects in the study area is assembled for which there is a reasonably foreseeable expectation that they will be implemented. These may include projects that are in an accepted plan or forecast, those that are in the analysis stage, those approved but not yet implemented, and those under construction. The proposed project is included on the list. The impacts of all projects on the list need to be calculated and combined for the future year condition.

The presentation of the LOS analysis should include a table indicating the calculated delays and LOS rating for each intersection under each scenario. The changes from the existing condition need to be noted. As a standard, an impact on an intersection is considered significant when the LOS degrades from D or better to LOS E or F, or from LOS E to F. For an intersection already operating at LOS E or F, the V/C ratio (Volume/Capacity) should be included in parentheses next to the delay in the tables that report the LOS. The V/C ratio provides another measure of the impact on an intersection already operating below the standard.

Unsignalized intersections should be analyzed using the methodology in Chapter 10 of the Highway Capacity Manual. Both two-way stop controlled (TWSC) and all-way stop controlled (AWSC) intersections are addressed in Chapter 10. The Level of Service for such intersections should follow the unsignalized criteria (Table 10-3), where a LOS F has a delay of greater than 45 seconds. The worst approach would normally be analyzed for LOS, but in some cases the worst movement may be more appropriate. The V/C ratio for LOS E and F intersections should also be presented with the delay. Unsignalized intersections that degrade to LOS E or F should be analyzed using the City's traffic signal warrants.

Regardless of the method used for the analysis of cumulative conditions, the report should describe to the extent feasible, the project's contribution to the cumulative. For example, if an intersection would degrade from LOS E to F under future cumulative conditions, what percentage of the new trips passing through that intersection would be attributable to the project? This should be presented as the project's contribution (in percent and volume) to: (1) the difference between the existing and the cumulative (i.e., traffic growth); and (2) the cumulative. What would be the project's impact on the critical movement at the intersection? Would the intersection degrade in the future whether or not the proposed project is implemented?

APPENDIX C

INTERIM
TRIP GENERATION METHODOLOGY

(Appendix 1 of *1991 Guidelines*)

Trip Generation Rates for Typical Land Uses

		Daily Person Trip Rate		P.M. Peak Percentage of Daily Trips	
Land Use	Density[1]	Per Employee	Per Unit Land Use[2]	Peak Hour	Peak Period
C-3 Primary Office					
Under 100,000 GSF	208	4.08	19.6	9.5	15.6
100,001-200,000	227	3.38	14.9	10.5	17.3
over 200,000 GSF	276	3.06	11.1	11.3	18.6
C-3 Secondary Office	276	5.0	18.1	6.6	11.5
Goverment Office	172	12.2	71.0	6.0	10.0
Back Office	210	3.4	16.2	12.5	20.5
Other Office	276	5.0	18.1	8.5	14.0
General Convenience Retail	350	52.5	150	4.0	8.0
Sales/Showrooms					
Composite Rate	721	22.0	30.5	6.6	12.0
Bulk Sales	719	33.6	46.7	6.6	12.0
Showrooms	830	5.0	6.0	6.6	12.0
Services					
Composite Rate	655	10.0	15.2	3.7	11.0
Service Delivery	1234	6.5	5.3	3.7	11.0
Service Repair	775	23.8	30.7	3.7	11.0
Service Institutional	248	7.1	28.6	3.7	11.0
Distribution	1234	12.6	10.2	3.2	6.5
Manufacturing	567	4.5	7.9	12.4	19.0
Eating/Drinking					
Composite Rate			600.0	13.5	27.0
Quality Sit Down			200.0	13.5	27.0
Fast-Food			1400.0	13.5	27.0
C-3 Hotel	908	15.3	17.4	3.2	7.0
Hotel/Motel	822	17.9	21.8	5.5	11.0
Athletic Clubs			57.0	10.5	
Billiards Parlors			2.6[3]		40.0
Daycare Centers			67.0	18.0	N/A
Residential					
Single Family/2+ Bdrm. Multi-Unit			10.0[4]	17.3	21.0
1 Bdrm./Studio			7.5[4]	17.3	21.0

NOTES:
(1)Gross Square Feet per employee
(2)Trips per 1,000 GSf unless otherwise specified
(3)Trips per billard table
(4)Trips per unit

Source:
Mission Bay FEIR
South of Market FEIR
Trip Generation, 5th Edition, ITE

(Appendix 2 of *1991 Guidelines*)

Percent Work/Non-Work Trip Split			
	24-Hour	P.M. Peak Hour	P.M. Peak Period
	Work/Non-Work	Work/Non-Work	Work/Non-Work
C-3 Districts			
Primary/Back Office	36/64	83/17	83/17
Government Office	20/80	83/17	83/17
Hotel	12/88	60/40	64/36
Retail	4/96	4/96	4/96
Non C-3 Districts			
Primary Office	36/64	83/17	78/22
Back Office	53/47	83/17	78/22
Government Office	20/80	83/17	78/22
Convenience Retail	8/92	8/92	8/92
Hotel/Motel	10/90	45/55	29/71
Sales/Showrooms	8/92	33/67	23/77
Service	18/82	75/25	33/67
Distribution	14/86	75/25	75/25
Manufacturing	40/60	67/33	60/40
Industrial/Warehouse			
Automotive Parking	43/57	43/57	53/47
Residential	33/67	50/50	50/50

Source: Mission Bay FEIR, South of Market FEIR

For commercial/industrial uses, 100% of all work trips during P.M. peak, and 50% of all non-work trips during P.M. peak, are outbound.

For residential uses, all P.M. peak work trips and 33% of all P.M. peak non-work trips are inbound to the project; resident inbound/outbound trip directions may or may not correspond to peak outbound regional travel direction.

APPENDIX D

TRIP DISTRIBUTION, MODE-SPLIT AND ASSIGNMENT METHODOLOGY

TRIP DISTRIBUTION, MODE SPLIT AND TRIP ASSIGNMENT METHODOLOGY

The steps in the transportation analysis process following trip generation include trip distribution, mode split and trip assignment. Unless a travel demand model is used, the procedure described below should be followed.

Once it is determined how many person trips are generated by a project, it is necessary to determine the travel mode for the trips, the number of vehicle (auto) trips, the distribution of the trips, and the assignment of the trips to the appropriate transportation network (e.g., street network or transit service). The modal split and distribution can vary by the type of trip (e.g., work or non-work (visitor)), and the land use at the destination (e.g., office, retail, other). To aid in the process, the tables in Appendix E have been prepared using data from the Citywide Travel Behavior Study (CTBS). The data is provided according to the location of the proposed project: the four Superdistricts (SD) in San Francisco, plus the C-3 District within Superdistrict 1. Because the data has been compiled by generalized locations and categories, it may not provide the maximum possible precision for any one project. Overall, however, it provides an adequate representation, and its use will maintain a consistency and comparability between the analyses of different projects.

For the C-3 District, work trips are categorized as "office" and "all other." The visitor (non-work) trips for the C-3 District are categorized as "office," "retail" and "all other." For the four Superdistricts, there is one category for work trips and two categories for visitor trips: "retail" and "all other." Some other areas of the city (e.g., Van Ness Avenue) also have tables that were derived from studies for those areas.

The number of trips by mode can be derived by applying the "Mode %" figure to the total trips. In order to calculate the number of auto vehicle trips, the number of auto trips needs to be divided by the "Persons Per Auto." For the C-3 District, the number of auto vehicle trips equals the number of "Drive Alone" trips plus the "Rideshare" trips that have been divided by the "Persons Per Auto, Rideshare."

The tables in Appendix E provide a general distribution of trips (e.g., SD-3, South Bay) which will be useful in directing certain trips to a particular freeway or transit screenline. A graphic representation of these general distributions normally aids in presenting the tabular data. In the next step, judgement must be used to assign the trips to particular links on the street network or to a transit screenline or a feeder bus line to the mainline corridor service. This information needs to be included in the study report, and a graphic presentation is especially important for the street network. Of course, consistency needs to be maintained between the tabular data and that presented graphically. A user of the report should not need to adjust the tabular data before it matches that used in the graphic form. Intersection volumes, by lane movement, should be consistent with the overall trip distributions and link or directional volumes.

APPENDIX E

TRIP DISTRIBUTION, MODE SPLIT, AND AUTO OCCUPANCY TABLES BY TRIP TYPE AND ORIGIN AND DESTINATION

The sources of the data in Tables E-1 to E-19 are the "Citywide Travel Behavior Study: Employees and Employers," May 1993; and "Visitor Travel Behavior," August 1993.
The source of the data in Tables E-18 to E-21 is the " Van Ness Avenue FEIR," Project no. 87.585E, certified on December 17, 1997.
The source of the data in Table E-22 is the "Transportation Impact Analysis for Chinatown Rezoning," San Francisco Planning Department, January 1987.

TABLE E-1

WORK TRIPS to *C-3 DISTRICT* -- OFFICE

	Distribution (%)	Mode (%)					Persons Per Auto, Rideshare
		Drive Alone	Ride-share	Transit	Walk	Other	
ALL ORIGINS	**100.0**	**22.4**	**10.9**	**61.7**	**2.3**	**2.7**	**2.50**
Superdistrict 1	7.9	19.3	18.7	30.2	27.1	4.7	3.00
Superdistrict 2	15.3	1.8	18.5	75.1	0.2	4.4	2.00
Superdistrict 3	22.1	25.6	6.6	63.6	0.3	3.9	2.33
Superdistrict 4	11.3	35.0	0.7	63.1	0.1	1.1	2.40
East Bay	24.1	8.7	9.5	80.8	0.0	1.0	4.47
North Bay	4.3	7.5	56.9	32.7	0.0	2.9	2.20
South Bay	13.7	63.6	2.0	32.6	0.0	1.8	2.67
Other	1.3	2.6	0.0	96.7	0.0	0.7	2.00

TABLE E-2
WORK TRIPS to *C-3 DISTRICT* -- ALL OTHER

	Distribution (%)	Mode (%)					Persons Per Auto, Rideshare
		Drive Alone	Ride-share	Transit	Walk	Other	
ALL ORIGINS	**100.0**	**22.2**	**6.5**	**63.6**	**5.6**	**2.1**	**2.72**
Superdistrict 1	14.1	7.6	0.1	39.6	50.2	2.5	2.00
Superdistrict 2	15.7	22.8	7.8	64.6	0.1	4.7	2.20
Superdistrict 3	19.9	14.6	5.6	71.0	5.6	3.2	2.13
Superdistrict 4	12.0	17.0	16.9	62.4	0.0	3.7	2.43
East Bay	22.7	24.9	14.4	58.8	0.0	1.9	3.70
North Bay	2.9	41.4	1.4	56.5	0.0	0.7	2.00
South Bay	11.1	51.6	9.5	38.5	0.0	0.4	2.71
Other	1.6	2.5	0.4	97.1	0.0	0.0	2.00

TABLE E-3
WORK TRIPS to *SD-1* -- All[1]

	Distribution (%)	Mode (%)				Persons Per Auto
		Auto	Transit	Walk	Other	
ALL ORIGINS	**100.0**	**38.9**	**51.7**	**6.9**	**2.5**	**1.54**
Superdistrict 1	12.8	13.8	36.0	47.5	2.7	1.28
Superdistrict 2	14.4	31.6	65.8	1.3	1.3	1.23
Superdistrict 3	17.0	39.5	54.4	3.8	2.3	1.29
Superdistrict 4	11.2	41.7	54.5	0.0	3.8	1.53
East Bay	22.4	39.4	57.0	0.0	3.6	3.33
North Bay	6.1	52.8	45.3	0.0	1.9	1.70
South Bay	14.3	58.0	40.7	0.0	1.3	1.23
Other	1.8	47.8	50.0	0.0	2.2	1.50

[1]Use this table only for SD-1 locations that are not in the C-3 District.

TABLE E-4
WORK TRIPS to *SD-2 -- All*

	Distribution (%)	Mode (%)				Persons Per Auto
		Auto	Transit	Walk	Other	
ALL ORIGINS	**100.0**	**52.8**	**31.7**	**12.6**	**2.9**	**1.23**
Superdistrict 1	8.4	39.3	40.7	16.7	3.3	1.19
Superdistrict 2	35.2	41.0	24.4	30.6	4.0	1.14
Superdistrict 3	15.8	49.9	48.0	0.0	2.1	1.25
Superdistrict 4	15.1	55.9	38.9	3.0	2.2	1.22
East Bay	7.1	67.4	31.0	0.0	1.6	2.02
North Bay	7.0	81.5	16.1	0.0	2.4	1.53
South Bay	10.6	69.9	27.5	0.0	2.6	1.21
Other	0.8	95.7	1.8	0.0	2.5	3.16

TABLE E-5
WORK TRIPS to *SD-3 -- All*

	Distribution (%)	Mode (%)				Persons Per Auto
		Auto	Transit	Walk	Other	
ALL ORIGINS	**100.0**	**71.1**	**20.2**	**5.8**	**2.9**	**1.23**
Superdistrict 1	8.3	46.9	32.7	17.7	2.7	1.30
Superdistrict 2	10.6	64.6	26.4	6.9	2.1	1.26
Superdistrict 3	23.9	59.7	20.6	15.1	4.6	1.25
Superdistrict 4	7.9	75.7	21.5	0.0	2.8	1.48
East Bay	14.3	68.8	29.7	0.0	1.5	1.61
North Bay	5.6	86.9	10.5	0.0	2.6	1.44
South Bay	26.9	88.5	8.8	0.0	2.7	1.13
Other	2.5	61.8	35.3	0.0	2.9	1.56

TABLE E-6
WORK TRIPS to *SD-4* -- All

	Distribution (%)	Mode (%)				Persons Per Auto
		Auto	Transit	Walk	Other	
ALL ORIGINS	100.0	69.7	23.0	4.9	2.4	1.19
Superdistrict 1	5.4	49.3	43.4	7.1	0.0	1.18
Superdistrict 2	10.1	62.6	35.4	0.0	2.0	1.28
Superdistrict 3	20.7	69.9	27.6	0.0	2.5	1.23
Superdistrict 4	29.8	65.2	16.2	15.1	3.4	1.07
East Bay	9.3	66.1	33.5	0.0	0.4	1.61
North Bay	3.9	56.4	41.0	0.0	2.6	1.44
South Bay	17.0	90.4	6.6	0.0	3.0	1.13
Other	3.8	78.4	18.9	0.0	2.7	1.20

TABLE E-7
VISITOR TRIPS to *C-3 DISTRICT* -- OFFICE

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	8	18	74	
Mode (%)					
Auto	30.5	39.0	27.2	30.4	1.94
Transit	39.9	41.0	13.8	46.4	
Walk	22.5	18.0	37.0	19.3	
Other	7.1	2.0	22.0	3.9	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	17	3	2	12	
Mode (%)					
Auto	9.6	10.0	0.0	11.5	1.84
Transit	28.7	40.0	19.4	28.4	
Walk	53.1	50.0	41.9	56.0	
Other	8.6	0.0	38.7	4.1	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	14	1	4	9	
Mode (%)					
Auto	24.7	33.3	16.7	27.4	2.00
Transit	43.7	44.5	8.3	58.0	
Walk	19.0	11.1	41.7	10.3	
Other	12.6	11.1	33.3	4.3	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	14	1	3	10	
Mode (%)					
Auto	20.5	26.7	16.2	21.0	2.01
Transit	51.7	73.3	18.9	58.9	
Walk	17.0	0.0	32.4	14.5	
Other	10.8	0.0	32.5	5.6	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	7	0	1	6	
Mode (%)					
Auto	27.7	0.0	28.6	23.0	2.10
Transit	52.1	0.0	7.1	58.6	
Walk	13.8	0.0	35.7	10.7	
Other	6.4	0.0	28.6	2.7	

TABLE E-7 (continued)
VISITOR TRIPS to *C-3 DISTRICT* -- OFFICE

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	23	2	3	18	
Mode (%)					
Auto	35.5	66.7	37.8	32.7	1.94
Transit	46.0	33.3	13.5	52.8	
Walk	15.6	0.0	43.3	11.8	
Other	2.9	0.0	5.4	2.7	
NORTH BAY RESIDENTS					
Distribution (%)	8	0	1	7	
Mode (%)					
Auto	48.6	0.0	47.1	47.3	1.97
Transit	34.2	0.0	29.4	37.6	
Walk	13.6	0.0	17.6	14.0	
Other	3.6	0.0	5.9	1.1	
SOUTH BAY RESIDENTS					
Distribution (%)	13	1	3	9	
Mode (%)					
Auto	53.2	71.8	48.7	52.6	1.98
Transit	32.0	21.5	10.8	40.2	
Walk	13.7	0.0	40.5	6.3	
Other	1.1	6.7	0.0	0.9	
OTHER RESIDENTS					
Distribution (%)	4	0	1	3	
Mode (%)					
Auto	33.3	0.0	45.4	28.9	1.39
Transit	15.7	0.0	0.0	18.4	
Walk	27.5	0.0	18.2	31.6	
Other	23.5	0.0	36.4	21.1	

TABLE E-8
VISITOR TRIPS to *C-3 DISTRICT* -- RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	11	30	59	
Mode (%)					
Auto	28.4	51.3	21.5	27.5	1.77
Transit	15.1	30.8	14.6	12.3	
Walk	44.6	12.8	58.5	43.7	
Other	11.9	5.1	5.4	16.5	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	8	2	2	4	
Mode (%)					
Auto	8.8	12.5	13.3	3.8	1.33
Transit	28.1	37.5	20.0	26.9	
Walk	61.3	50.0	66.7	65.5	
Other	1.8	0.0	0.0	3.8	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	8	2	3	3	
Mode (%)					
Auto	20.4	46.1	9.1	15.8	1.67
Transit	25.9	23.1	27.3	26.3	
Walk	48.1	7.7	63.6	57.9	
Other	5.6	23.1	0.0	0.0	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	12	1	5	6	
Mode (%)					
Auto	37.0	51.4	20.6	50.0	1.89
Transit	12.3	34.3	17.6	5.0	
Walk	43.3	0.0	53.0	40.0	
Other	7.4	14.3	8.8	5.0	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	4	1	1	2	
Mode (%)					
Auto	14.3	40.0	10.0	7.7	1.75
Transit	28.6	60.0	30.0	15.4	
Walk	46.4	0.0	60.0	53.8	
Other	10.7	0.0	0.0	23.1	

TABLE E-8 (continued)
VISITOR TRIPS to *C-3 DISTRICT*--RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	15	2	6	7	
Mode (%)					
Auto	31.0	38.5	18.4	38.8	2.00
Transit	24.0	61.5	13.2	22.4	
Walk	43.0	0.0	68.4	34.7	
Other	2.0	0.0	0.0	4.1	
NORTH BAY RESIDENTS					
Distribution (%)	10	1	4	5	
Mode (%)					
Auto	46.9	100.0	26.9	51.5	1.40
Transit	18.2	0.0	15.4	24.2	
Walk	28.8	0.0	53.9	15.2	
Other	6.1	0.0	3.8	9.1	
SOUTH BAY RESIDENTS					
Distribution (%)	5	1	2	2	
Mode (%)					
Auto	55.5	75.0	66.7	37.5	3.23
Transit	5.6	25.0	0.0	0.0	
Walk	30.6	0.0	33.3	43.7	
Other	8.3	0.0	0.0	18.8	
OTHER RESIDENTS					
Distribution (%)	38	1	7	30	
Mode (%)					
Auto	23.4	88.9	20.8	21.1	1.69
Transit	6.9	11.1	6.3	6.9	
Walk	47.1	0.0	58.3	46.5	
Other	22.6	0.0	14.6	25.5	

TABLE E-9
VISITOR TRIPS to *C-3 DISTRICT* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	38	19	43	
Mode (%)					
Auto	36.1	48.4	33.1	26.6	1.85
Transit	27.9	35.0	20.6	25.0	
Walk	30.9	11.7	44.1	41.8	
Other	5.1	4.9	2.2	6.6	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	26	9	1	16	
Mode (%)					
Auto	16.1	24.1	10.0	13.1	1.73
Transit	31.2	35.2	40.0	28.7	
Walk	48.4	35.1	50.0	54.1	
Other	4.3	5.6	0.0	4.1	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	13	6	3	4	
Mode (%)					
Auto	34.7	30.0	28.6	48.2	1.81
Transit	33.7	47.5	21.4	25.9	
Walk	26.3	17.5	42.9	22.2	
Other	5.3	5.0	7.1	3.7	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	13	5	4	4	
Mode (%)					
Auto	44.8	46.0	48.0	40.0	1.59
Transit	27.6	37.8	16.0	24.0	
Walk	18.4	5.4	36.0	20.0	
Other	9.2	10.8	0.0	16.0	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	5	2	2	1	
Mode (%)					
Auto	39.3	41.2	45.4	20.0	1.58
Transit	36.4	41.2	18.2	60.0	
Walk	15.2	0.0	36.4	20.0	
Other	9.1	17.6	0.0	0.0	

TABLE E-9 (continued)
VISITOR TRIPS to *C-3 DISTRICT* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	11	5	3	3	
Mode (%)					
Auto	39.5	55.5	25.0	31.6	1.83
Transit	33.3	44.5	20.8	31.6	
Walk	27.2	0.0	54.2	36.8	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	7	4	1	2	
Mode (%)					
Auto	78.9	86.7	33.3	92.3	2.18
Transit	11.5	13.3	22.2	0.0	
Walk	9.6	0.0	44.5	7.7	
Other	0.0	0.0	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	10	4	4	2	
Mode (%)					
Auto	64.3	87.1	40.0	57.1	1.92
Transit	14.3	6.5	16.0	28.6	
Walk	20.0	3.2	44.0	14.3	
Other	1.4	3.2	0.0	0.0	
OTHER RESIDENTS					
Distribution (%)	15	3	1	11	
Mode (%)					
Auto	21.6	36.8	0.0	19.0	2.26
Transit	27.5	63.2	25.0	19.0	
Walk	40.1	0.0	50.0	49.3	
Other	10.3	0.0	25.0	12.7	

TABLE E-10
VISITOR TRIPS to *SD-1* -- RETAIL[1]

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	23	26	51	
Mode (%)					
Auto	**35.7**	47.4	26.6	34.9	2.43
Transit	**15.5**	24.0	12.2	13.1	
Walk	**36.0**	18.1	53.6	35.6	
Other	**12.8**	10.5	7.6	16.4	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	19	5	3	11	
Mode (%)					
Auto	**18.1**	17.0	16.1	19.1	1.62
Transit	**14.7**	13.0	19.6	14.2	
Walk	**63.0**	70.0	58.9	60.8	
Other	**4.2**	0.0	5.4	5.9	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	7	2	3	2	
Mode (%)					1.66
Auto	**27.9**	47.6	10.0	29.7	
Transit	**32.6**	40.5	22.0	37.9	
Walk	**34.1**	4.8	66.0	24.3	
Other	**5.4**	7.1	2.0	8.1	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	8	2	4	2	
Mode (%)					
Auto	**31.2**	36.7	17.9	48.8	2.08
Transit	**21.7**	33.3	23.9	9.8	
Walk	**41.3**	20.0	55.2	34.1	
Other	**5.8**	10.0	3.0	7.3	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	3	1	1	1	
Mode (%)					
Auto	**34.0**	47.4	21.1	33.3	1.51
Transit	**34.0**	42.1	21.1	41.7	
Walk	**28.0**	0.0	57.8	25.0	
Other	**4.0**	10.5	0.0	0.0	

[1]Use this table only for SD-1 locations that are not in the C-3 District.

TABLE E-10 (continued)
VISITOR TRIPS to *SD-1* -- RETAIL[1]

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	11	4	5	2	
Mode (%)					
Auto	38.1	59.7	21.7	36.7	2.35
Transit	23.2	40.3	9.8	23.3	
Walk	36.6	0.0	68.5	26.7	
Other	2.1	0.0	0.0	13.3	
NORTH BAY RESIDENTS					
Distribution (%)	5	1	2	2	
Mode (%)					
Auto	46.1	84.7	30.0	35.7	2.27
Transit	17.6	9.7	12.5	32.1	
Walk	34.1	0.0	55.0	28.6	
Other	2.2	5.6	2.5	3.6	
SOUTH BAY RESIDENTS					
Distribution (%)	8	4	2	2	
Mode (%)					2.84
Auto	73.8	72.0	71.9	78.6	
Transit	14.1	28.0	0.0	0.0	
Walk	10.1	0.0	28.1	14.3	
Other	2.0	0.0	0.0	7.1	
OTHER RESIDENTS					
Distribution (%)	39	4	6	29	
Mode (%)					
Auto	37.0	43.4	34.7	36.6	3.12
Transit	8.4	6.6	1.7	10.1	
Walk	28.3	0.0	39.0	29.9	
Other	26.3	50.0	24.6	23.4	

[1]Use this table only for SD-1 locations that are not in the C-3 District.

TABLE E-11
VISITOR TRIPS to *SD-1* -- ALL OTHER[1]

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	47	18	35	
Mode (%)					
Auto	36.0	43.6	24.1	31.9	2.37
Transit	25.4	30.4	19.0	21.9	
Walk	32.2	20.0	52.7	38.0	
Other	6.4	6.0	4.2	8.2	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	22	13	2	7	
Mode (%)					
Auto	12.9	16.6	15.0	5.7	2.29
Transit	17.1	19.8	22.5	10.7	
Walk	65.3	58.3	52.5	81.5	
Other	4.7	5.3	10.0	2.1	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	14	8	4	2	
Mode (%)					
Auto	31.9	39.9	17.6	29.4	2.07
Transit	35.0	41.2	23.0	35.3	
Walk	26.7	11.9	52.6	32.4	
Other	6.4	7.0	6.8	2.9	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	13	7	3	3	
Mode (%)					
Auto	38.8	35.3	40.0	47.9	2.39
Transit	36.8	47.0	23.3	23.9	
Walk	17.4	7.4	35.0	23.9	
Other	7.0	10.3	1.7	4.3	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	7	4	2	1	
Mode (%)					
Auto	42.5	51.5	22.6	42.9	1.93
Transit	32.7	38.2	25.8	21.4	
Walk	17.7	0.0	51.6	28.6	
Other	7.1	10.3	0.0	7.1	

[1]Use this table only for SD-1 locations that are not in the C-3 District.

TABLE E-11 (continued)
VISITOR TRIPS to *SD-1* -- ALL OTHER[1]

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	11	5	4	2	2.43
Mode (%)					
Auto	47.4	61.5	17.4	65.2	
Transit	24.9	35.4	11.6	23.9	
Walk	25.4	0.0	69.6	8.7	
Other	2.3	3.1	1.4	2.2	
NORTH BAY RESIDENTS					
Distribution (%)	5	3	1	1	1.91
Mode (%)					
Auto	71.1	81.8	24.0	92.9	
Transit	9.6	13.3	12.0	0.0	
Walk	15.8	0.0	60.0	7.1	
Other	3.5	4.9	4.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	7	4	1	2	2.46
Mode (%)					
Auto	59.5	70.4	29.2	61.5	
Transit	24.6	27.0	12.5	30.8	
Walk	13.5	0.0	54.1	7.7	
Other	2.4	2.6	4.2	0.0	
OTHER RESIDENTS					
Distribution (%)	21	3	1	17	3.17
Mode (%)					
Auto	35.9	83.7	46.1	28.4	
Transit	24.1	14.3	15.4	25.9	
Walk	27.7	0.0	30.8	31.7	
Other	12.3	2.0	7.7	14.0	

[1]Use this table only for SD-1 locations that are not in the C-3 District.

TABLE E-12
VISITOR TRIPS to *SD-2* -- RETAIL

	ALL ORIGINS	Home-Based Oirigns	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	45	19	36	
Mode (%)					
Auto	64.3	62.0	63.3	67.6	1.88
Transit	6.9	5.2	8.8	8.1	
Walk	26.2	30.4	25.9	21.0	
Other	2.6	2.4	2.0	3.3	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	12	6	1	5	
Mode (%)					
Auto	78.4	72.9	88.9	82.0	2.30
Transit	8.5	10.8	11.1	4.9	
Walk	11.1	12.2	0.0	13.1	
Other	2.0	4.1	0.0	0.0	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	55	29	9	17	
Mode (%)					
Auto	56.5	54.5	56.9	59.9	1.57
Transit	7.2	3.9	12.9	9.8	
Walk	34.5	39.8	29.3	28.1	
Other	1.8	1.8	0.9	2.2	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	8	4	2	2	
Mode (%)					
Auto	60.9	68.4	33.3	69.3	2.04
Transit	10.0	8.3	12.5	11.5	
Walk	25.5	20.0	54.2	11.5	
Other	3.6	3.3	0.0	7.7	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	7	3	2	2	
Mode (%)					
Auto	81.2	75.7	77.3	90.3	2.49
Transit	4.4	5.4	4.5	3.2	
Walk	10.0	13.5	9.1	6.5	
Other	4.4	5.4	9.1	0.0	

TABLE E-12 (continued)
VISITOR TRIPS to *SD-2* -- RETAIL

	ALL ORIGINS	Home-Based Oirigns	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	3	1	1	1	
Mode (%)					
Auto	65.8	100.0	64.7	46.6	2.31
Transit	9.8	0.0	0.0	26.7	
Walk	24.4	0.0	35.3	26.7	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	2	0	1	1	
Mode (%)					
Auto	81.2	0.0	75.0	87.5	2.13
Transit	0.0	0.0	0.0	0.0	
Walk	18.8	0.0	25.0	12.5	
Other	0.0	0.0	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	5	2	1	2	
Mode (%)					
Auto	95.1	100.0	86.7	96.0	3.47
Transit	0.0	0.0	0.0	0.0	
Walk	4.9	0.0	13.3	4.0	
Other	0.0	0.0	0.0	0.0	
OTHER RESIDENTS					
Distribution (%)	5	2	2	6	
Mode (%)					
Auto	62.5	0.0	70.4	59.7	1.87
Transit	7.0	0.0	3.7	7.3	
Walk	20. 9	0.0	18.5	22.0	
Other	9.6	0.0	7.4	11.0	

TABLE E-13
VISITOR TRIPS to *SD-2* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	44	15	41	
Mode (%)					
Auto	54.8	60.5	41.6	53.5	2.06
Transit	23.4	23.8	17.6	25.1	
Walk	15.2	10.4	32.8	14.0	
Other	6.6	5.3	8.0	7.4	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	13	8	2	3	
Mode (%)					
Auto	41.7	46.1	26.7	40.0	1.93
Transit	35.5	32.3	20.0	50.0	
Walk	16.4	18.5	26.7	6.7	
Other	6.4	3.1	26.6	3.3	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	27	14	3	10	
Mode (%)					
Auto	50.9	45.4	57.7	56.6	1.96
Transit	23.7	24.4	15.4	25.3	
Walk	19.7	21.0	26.9	15.7	
Other	5.7	9.2	0.0	2.4	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	14	6	2	6	
Mode (%)					
Auto	57.1	65.5	36.8	58.0	2.05
Transit	22.3	23.0	10.5	24.0	
Walk	9.9	1.9	42.2	6.0	
Other	10.7	9.6	10.5	12.0	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	9	4	1	4	
Mode (%)					
Auto	63.4	60.6	37.5	73.3	2.16
Transit	32.4	36.4	37.5	26.7	
Walk	4.2	3.0	25.0	0.0	
Other	0.0	0.0	0.0	0.0	

TABLE E-13 (continued)
VISITOR TRIPS to *SD-2* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	11	4	3	4	
Mode (%)					
Auto	52.2	77.1	24.0	46.8	2.20
Transit	25.0	22.9	28.0	25.0	
Walk	14.1	0.0	44.0	6.3	
Other	8.7	0.0	4.0	21.9	
NORTH BAY RESIDENTS					
Distribution (%)	4	2	1	1	
Mode (%)					
Auto	73.6	93.3	22.2	90.0	1.89
Transit	8.8	6.7	11.1	10.0	
Walk	14.7	0.0	55.6	0.0	
Other	2.9	0.0	11.1	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	8	4	2	2	
Mode (%)					
Auto	80.5	88.9	68.7	75.0	2.30
Transit	8.3	8.3	6.3	10.0	
Walk	5.6	0.0	12.5	10.0	
Other	5.6	2.8	12.5	5.0	
OTHER RESIDENTS					
Distribution (%)	14	2	1	11	
Mode (%)					
Auto	48.3	84.2	57.1	40.6	2.07
Transit	19.7	10.5	14.3	21.9	
Walk	23.8	0.0	28.6	28.1	
Other	8.2	5.3	0.0	9.4	

TABLE E-14
VISITOR TRIPS to *SD-3* -- RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	46	14	40	
Mode (%)					
Auto	64.1	68.6	54.1	62.3	1.90
Transit	11.7	9.5	26.9	8.9	
Walk	22.4	20.6	17.1	26.4	
Other	1.8	1.3	1.9	2.4	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	6	3	1	2	
Mode (%)					
Auto	45.0	51.0	52.6	32.4	1.76
Transit	29.0	29.8	21.1	32.4	
Walk	22.0	12.8	26.3	32.3	
Other	4.0	6.4	0.0	2.9	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	9	4	2	3	
Mode (%)					
Auto	61.8	74.2	30.4	62.0	1.52
Transit	15.3	10.3	52.2	4.0	
Walk	19.8	13.8	17.4	28.0	
Other	3.1	1.7	0.0	6.0	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	61	32	6	23	
Mode (%)					
Auto	60.4	65.7	45.5	57.5	2.04
Transit	9.5	6.7	31.3	7.2	
Walk	28.7	26.8	21.2	33.4	
Other	1.4	0.8	2.0	1.9	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	5	2	1	2	
Mode (%)					
Auto	84.7	91.3	85.7	74.0	1.78
Transit	9.7	2.9	14.3	17.4	
Walk	2.8	2.9	0.0	4.3	
Other	2.8	2.9	0.0	4.3	

TABLE E-14 (continued)
VISITOR TRIPS to *SD-3* -- RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	3	0	1	2	
Mode (%)					
Auto	75.0	0.0	64.3	91.4	1.77
Transit	12.5	0.0	7.1	4.3	
Walk	12.5	0.0	28.6	4.3	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	2	1	0	1	
Mode (%)					
Auto	87.5	90.9	0.0	100.0	1.44
Transit	12.5	9.1	0.0	0.0	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	9	3	2	4	
Mode (%)					
Auto	86.4	86.8	81.8	88.2	1.98
Transit	9.1	13.2	9.1	5.9	
Walk	3.2	0.0	3.0	5.9	
Other	1.3	0.0	6.1	0.0	
OTHER RESIDENTS					
Distribution (%)	5	1	1	3	
Mode (%)					
Auto	59.2	80.0	44.5	57.6	1.69
Transit	16.9	20.0	33.3	13.5	
Walk	19.7	0.0	22.2	23.1	
Other	4.2	0.0	0.0	5.3	

TABLE E-15
VISITOR TRIPS to *SD-3* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	66	8	26	
Mode (%)					
Auto	56.8	61.5	60.3	43.5	2.26
Transit	18.6	16.9	29.2	19.9	
Walk	16.3	17.6	4.2	16.7	
Other	8.3	4.0	6.3	19.9	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	13	9	1	3	
Mode (%)					
Auto	36.0	35.8	20.0	40.0	2.03
Transit	19.2	18.9	60.0	10.0	
Walk	33.3	28.3	20.0	50.0	
Other	11.5	17.0	0.0	0.0	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	14	8	1	5	
Mode (%)					
Auto	68.6	80.5	50.0	54.8	1.97
Transit	14.5	15.2	33.3	9.7	
Walk	2.4	0.0	0.0	6.5	
Other	14.5	4.3	16.7	29.0	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	44	30	2	12	
Mode (%)					
Auto	43.7	52.2	33.3	21.9	2.43
Transit	21.5	16.7	58.4	28.1	
Walk	25.4	30.0	0.0	17.2	
Other	9.4	1.1	8.3	32.8	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	7	4	1	2	
Mode (%)					
Auto	67.4	66.7	54.0	69.2	2.51
Transit	16.3	18.5	28.0	15.4	
Walk	7.0	3.7	4.0	15.4	
Other	9.3	11.1	14.0	0.0	

TABLE E-15 (continued)
VISITOR TRIPS to *SD-3* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	9	6	2	1	
Mode (%)					
Auto	68.4	64.9	72.7	77.8	2.59
Transit	29.8	35.1	18.2	22.2	
Walk	1.8	0.0	9.1	0.0	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	1	1	0	0	
Mode (%)					
Auto	100.0	100.0	0.0	0.0	2.11
Transit	0.0	0.0	0.0	0.0	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	9	7	1	1	
Mode (%)					
Auto	94.6	97.6	100.0	75.0	2.28
Transit	3.6	2.4	0.0	12.5	
Walk	1.8	0.0	0.0	12.5	
Other	0.0	0.0	0.0	0.0	
OTHER RESIDENTS					
Distribution (%)	3	1	0	2	
Mode (%)					
Auto	73.6	83.3	0.0	60.0	1.68
Transit	21.1	16.7	0.0	30.0	
Walk	0.0	0.0	0.0	0.0	
Other	5.3	0.0	0.0	10.0	

TABLE E-16
VISITOR TRIPS to *SD-4* -- RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	**100**	50	9	41	
Mode (%)					
Auto	**74.9**	73.8	62.1	78.9	1.84
Transit	**6.8**	7.6	5.7	6.1	
Walk	**17.4**	17.3	32.2	14.2	
Other	**0.9**	1.3	0.0	0.8	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	**2**	1	0	1	
Mode (%)					
Auto	**82.4**	85.7	0.0	77.8	1.65
Transit	**17.6**	14.3	0.0	22.2	
Walk	**0.0**	0.0	0.0	0.0	
Other	**0.0**	0.0	0.0	0.0	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	**12**	5	2	5	
Mode (%)					
Auto	**74.3**	73.1	68.2	79.4	1.84
Transit	**12.4**	23.1	4.5	2.6	
Walk	**10.6**	0.0	27.3	15.4	
Other	**2.7**	3.8	0.0	2.6	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	**22**	11	2	9	
Mode (%)					
Auto	**82.0**	83.5	47.4	87.7	1.79
Transit	**7.6**	9.7	10.5	4.5	
Walk	**9.5**	6.8	42.1	5.6	
Other	**0.9**	0.0	0.0	2.2	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	46	23	3	20	
Mode (%)					
Auto	**66.1**	60.6	73.1	71.7	1.79
Transit	**6.2**	6.0	3.8	6.7	
Walk	**27.2**	32.6	23.1	21.6	
Other	**0.5**	0.9	0.0	0.0	

TABLE E-16 (continued)
VISITOR TRIPS to *SD-4* -- RETAIL

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	2	0	1	1	
Mode (%)					
Auto	61.1	0.0	40.0	55.6	1.29
Transit	11.1	0.0	0.0	22.2	
Walk	27.8	0.0	60.0	22.2	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	1	1	0	0	
Mode (%)					
Auto	91.7	91.7	0.0	0.0	2.83
Transit	0.0	0.0	0.0	0.0	
Walk	0.0	0.0	0.0	0.0	
Other	8.3	8.3	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	10	7	1	2	
Mode (%)					
Auto	93.1	100.0	40.0	95.7	2.10
Transit	1.0	0.0	10.0	0.0	
Walk	5.9	0.0	50.0	4.3	
Other	0.0	0.0	0.0	0.0	
OTHER RESIDENTS					
Distribution (%)	5	2	0	3	
Mode (%)					
Auto	93.5	93.3	0.0	92.9	3.09
Transit	4.3	0.0	0.0	7.1	
Walk	0.0	0.0	0.0	0.0	
Other	2.2	6.7	0.0	0.0	

TABLE E-17
VISITOR TRIPS to *SD-4* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
ALL VISITORS					
Distribution (%)	100	57	8	34	
Mode (%)					
Auto	76.3	72.1	88.5	80.7	2.10
Transit	16.1	18.1	7.7	14.7	
Walk	5.4	8.2	0.0	1.8	
Other	2.2	1.6	3.8	2.8	
SUPERDISTRICT 1 RESIDENTS					
Distribution (%)	4	3	0	1	
Mode (%)					
Auto	46.2	55.6	0.0	25.0	1.41
Transit	53.8	44.4	0.0	75.0	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
SUPERDISTRICT 2 RESIDENTS					
Distribution (%)	14	11	0	3	
Mode (%)					
Auto	58.1	58.9	0.0	50.0	2.01
Transit	20.9	17.6	0.0	37.5	
Walk	14.0	17.6	0.0	0.0	
Other	7.0	5.9	0.0	12.5	
SUPERDISTRICT 3 RESIDENTS					
Distribution (%)	19	12	1	6	
Mode (%)					
Auto	77.0	78.9	100.0	70.0	2.31
Transit	23.0	21.1	0.0	30.0	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
SUPERDISTRICT 4 RESIDENTS					
Distribution (%)	30	22	3	5	
Mode (%)					
Auto	70.1	68.0	75.0	78.6	2.00
Transit	18.6	18.7	25.0	14.3	
Walk	10.3	12.0	0.0	7.1	
Other	1.0	1.3	0.0	0.0	

TABLE E-17 (continued)
VISITOR TRIPS to *SD-4* -- ALL OTHER

	ALL ORIGINS	Home-Based Origins	Work-Based Origins	All Other Origins	Persons Per Auto
EAST BAY RESIDENTS					
Distribution (%)	5	2	2	2	
Mode (%)					
Auto	93.7	83.3	100.0	100.0	1.68
Transit	6.3	16.7	0.0	0.0	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
NORTH BAY RESIDENTS					
Distribution (%)	7	2	1	4	
Mode (%)					
Auto	95.7	100.0	100.0	92.3	2.16
Transit	4.3	0.0	0.0	7.7	
Walk	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	
SOUTH BAY RESIDENTS					
Distribution (%)	8	4	1	3	
Mode (%)					
Auto	96.2	100.0	66.7	100.0	2.03
Transit	0.0	0.0	0.0	0.0	
Walk	0.0	0.0	0.0	0.0	
Other	3.8	0.0	33.3	0.0	
OTHER RESIDENTS					
Distribution (%)	11	1	0	10	
Mode (%)					
Auto	89.5	100.0	0.0	88.5	2.79
Transit	2.6	0.0	0.0	2.9	
Walk	2.6	0.0	0.0	2.9	
Other	5.3	0.0	0.0	5.7	

TABLE E-18
WORK TRIPS to VAN NESS COMMERCIAL DISTRICT -- ALL
(PM Peak Period)

	Distribution (%)	Mode (%)						
		Drive Alone	Ride-share	MUNI Transit	BART Transit	Other Transit	Walk	Other
ALL ORIGINS	100.0	19.3	18.3	27.1	15.0	8.2	8.5	3.6
Superdistrict 1	12.3	4.9	7.9	43.4			42.2	1.6
Superdistrict 2	16.6	2.3	14.8	61.0			2.0	1.9
Superdistrict 3	17.0	20.6	17.5	48.0	11.8		0.4	1.7
Superdistrict 4	7.3	24.5	16.4	53.8	3.9		0.0	1.4
East Bay	19.0	23.3	16.1		52.4	8.2	0.0	0.0
North Bay	9.3	19.3	29.1	0.0		51.6	0.0	0.0
Peninsula - South Bay	18.3	41.5	28.6	2.4	16.6	10.9	0.0	0.0
Internal to Van Ness Corridor	0.2	12.48	0.7	27.3			58.8	0.8

TABLE E-19
VISITOR TRIPS to VAN NESS COMMERCIAL DISTRICT -- ALL
(PM Peak Period)

	Distribution (%)	Mode (%)						
		Drive Alone	Ride-share	MUNI Transit	BART Transit	Other Transit	Walk	Other
ALL ORIGINS	**100.0**	**44.4**	**14.5**	**17.7**	**8.1**	**3.6**	**10.0**	**1.7**
Superdistrict 1	13.0	37.4	19.8	26.4			14.0	2.4
Superdistrict 2	26.7	45.8	11.1	30.8			10.0	2.3
Superdistrict 3	18.1	50.9	18.4	21.0	4.2		3.6	1.9
Superdistrict 4	4.2	47.5	10.9	36.4	3.5		0.0	1.7
East Bay	14.7	43.9	7.5		44.0	4.6	0.0	0.0
North Bay	5.8	43.4	11.9			44.7	0.0	0.0
Peninsula - South Bay	10.5	58.8	28.5	0.2	7.0	3.0	0.0	2.5
Internal to Van Ness Corridor	7.0	13.8	5.5	10.1			69.8	0.8

Source: Van Ness Avenue FEIR

TABLE E-20
RESIDENTS OF VAN NESS AVENUE -- WORK TRIPS
(PM Peak Period)

	Distribution (%)	Mode (%)						
		Drive Alone	Ride-share	MUNI Transit	BART Transit	Other Transit	Walk	Other
ALL ORIGINS	**100.0**	**29.2**	**11.1**	**41.8**	**1.5**	**0.6**	**13.9**	**1.9**
Superdistrict 1	59.1	14.9	11.1	53.8			18.4	1.8
Superdistrict 2	17.4	37.7	11.8	31.3			16.7	2.5
Superdistrict 3	9.2	45.2	9.6	40.6			2.4	2.2
Superdistrict 4	2.7	66.7	4.9	25.7			0.0	2.7
East Bay	5.3	70.0	9.0		18.0	3.0	0.0	0.0
North Bay	1.3	71.0	17.5			11.5	0.0	0.0
Peninsula - South Bay	5.0	65.0	15.5	1.8	10.0	6.0	0.0	1.7
Internal to Van Ness Corridor	0.0	0.0	0.0				0.0	0.0

TABLE E-21
RESIDENTS OF VAN NESS AVENUE -- NON-WORK TRIPS
(PM Peak Period)

	Distribution (%)	Mode (%)						
		Drive Alone	Ride-share	MUNI Transit	BART Transit	Other Transit	Walk	Other
ALL ORIGINS	100.0	11.3	14.7	31.8	3.3	0.4	36.0	2.4
Superdistrict 1	12.7	20.9	29.2	37.9			8.8	3.2
Superdistrict 2	9.2	18.1	23.6	44.8			10.4	3.1
Superdistrict 3	6.6	17.7	12.5	60.0			1.8	8.0
Superdistrict 4	5.4	10.4	11.6	73.0	5.0		0.0	0.0
East Bay	1.6	35.1	22.1		42.0	0.8	0.0	0.0
North Bay	1.1	12.4	87.6				0.0	0.0
Peninsula - South Bay	5.9	35.6	17.3		40.1	7.0	0.0	0.0
Internal to Van Ness Corridor	57.5	4.4	8.7	26.0			58.8	2.1

TABLE E-22
WORK TRIPS to CHINATOWN -- ALL
(PM Peak Period)

	Distribution (%)	Mode (%)				
		Drive Alone	Ride-share*	MUNI Transit	BART and Other Transit	Walk
ALL ORIGINS	**100**	**28**	**8**	**31**	**8**	**25**
Superdistrict 1	33	7	4	14		75
Superdistrict 2	19	37	7	56		
Superdistrict 3	7	37	7	48	8	
Superdistrict 4	25	37	7	49	7	
East Bay	6	32	23		45	
North Bay	1	52	16		32	
Peninsula - South Bay	9	52	16		32	

Source: Transportation Impact Analysis for Chinatown Rezoning, Jan. 1987, S. F. Dept. of City Planning

*Vehicle occupancy for shared ride assumed to be 2.7 persons per vehicle.

APPENDIX F

TRANSIT IMPACT ANALYSIS METHODOLOGY

TRANSIT IMPACT ANALYSIS METHODOLOGY

I. GENERAL APPROACH

The methodology for the analysis of transit impacts will vary based on the location and character of the project. The location of the project determines the availability and level of transit service, and any specific corridors that may serve the area. The character of the project is a determinant in the distribution and direction of trips to and from the site. The analysis focuses on the p.m. peak period and peak hour when the demand on the transit system is at or near a peak, as is the capacity. Therefore, work trips in that period are normally assumed to be outbound from the work sites to residence locations. The tables in Appendix C provide information on the proportion and distribution of transit trips.

The analysis of transit trips normally requires one or both of these two components: screenline analysis and directional link analysis.

A. Screenline Analysis

Screenline analysis assumes that there a identifiable corridors or directions of travel which are served by a grouping of transit lines. It is assumed that someone traveling on transit in that direction will choose one of the transit lines that collectively serve the corridor or that direction of travel. It also assumes that if one line is overloaded, the transit user will shift to another line headed in the same general direction. A screenline is selected that intercepts a group of transit lines at or near their maximum load point. The capacity of a transit line is determined by the type of vehicles used and the frequency of service. The capacity of the transit system for a particular direction of travel is, therefore, assumed to be the sum of the capacity for all the transit lines identified with a particular screenline. Likewise, the loading of the transit system for a particular screenline is assumed to be the sum of the passengers on all the transit lines associated with a screenline. The screenline analysis is most suitable for use in the greater downtown area which is a focal point for transit service, especially the peak hour work trip.

B. Directional Link Analysis

The "directional link" analysis requires the examination of a limited number of transit lines that serve or are in close proximity to the project site. Transit trips are assigned to the lines based on the direction of travel and the need to "link" to other transit lines or carriers. A transit rider may use only one line for his or her trip, or may first use a local line to access another transit line that is headed to their final destination. For example, a transit rider may first need to ride in one direction, (e.g., north) in order to connect to corridor service that is headed east or west. In some cases, a rider may need to travel to a regional transit terminal that will eventual provide service to an area outside the city. Or, a rider in superdistrict 3 may find that there is only one transit line that can reasonably be used to travel to superdistrict 4. The directional link analysis is suitable for a number of conditions, for example:

- Areas where it is most likely that a local transit line will be used to access a larger transit corridor;
- Areas where transit service is very limited and the local line(s) will be the dominant transit provider regardless of the direction of travel and;
- Situations where the predominant travel times at a project site are other than the normal peak period.

Directional link analysis may be used in conjunction with a screenline analysis when a sufficient number of trips are linked to one of the screenline corridors.

II. ANALYSIS BY AREA

A. Greater Downtown Area; Screenline Analysis

The greater downtown area consists of the C-3, SOMA, and Mission Bay districts. For projects within that area, the transit analysis may require the use of a screenline analysis for the PM peak period and PM peak hour trips for the cumulative condition, which is represented by the horizon year (currently 2015). Separate screenlines are used for MUNI (Figure F-1) and for the regional transit carriers (Figure F-2) for outbound travel. Table F-1 lists the actual PM peak period and peak hour ridership and capacity for the MUNI screenlines as derived from 1997/1998 data. Table F-2 provides similar data for the regional transit operators. Both of these tables will be updated periodically as more current data becomes available. Similar to traffic impact analyses, the net new transit trips generated by the project should be cited and also expressed as a percentage contribution to the total cumulative ridership and the cumulative growth, by transit operator. Projects which are more distant from the major transit corridors may also require a directional link analysis.

1. MUNI Analysis

Assessments of MUNI's capacity in relation to demand for existing, existing plus project, and cumulative conditions for proposed projects in the greater downtown area should include a screenline analysis, unless otherwise directed. In the development of the MUNI analysis, the assignment of transit trips to transit lines and the selection of the appropriate screenline should reflect the location (by Superdistrict) of the destination or origin of the trip.

Groupings of MUNI lines for the screenlines, as shown in Figure F-1, were defined for the PM peak period based on the following considerations.

- The SE screenline should be located not at the Mission Bay Channel (the actual boundary between superdistricts 1 and 3) but instead in the vicinity of Mariposa/3rd Streets in order to keep all of the Mission Bay project area whole.
- Some MUNI lines provide important service across more than one screenline, and therefore need to be included in more than one screenline. A good example is the 15 line which needs to be included in both the Northwest (NW) and Northeast (NE) screenlines.
- MUNI has requested that "policy lines" (which they generally define as bus lines operating at greater than a ten minute headway during the peak periods) should not be included in screenline totals because they should not be presumed to attract significant ridership nor have any "surplus" capacity that is available for use by riders on more crowded lines.

Based on these understandings, the groupings by MUNI screenline for the PM Peak Period should be as stated below. Normally, one can relate the geographic groupings to the Superdistricts as shown in Figure A-3. MUNI ridership and capacity for existing, existing plus project, and cumulative conditions should also be reported by the following sub-categories or corridors within each of the four screenlines listed below.

Screenline	Transit Corridor/Category	Transit Lines
Northeast	▲ Kearny/Stockton corridor: ▲ All other lines:	15, 30, 30X, 45 41, 42, 82X, (F when operational)
Northwest	▲ Geary corridor: ▲ All other lines:	38, 38L, 38AX, 38BX 1, 1AX, 1BX, 2, 3, 4, 5, 21, 30, 31, 31AX, 31BX, 45
Southeast	▲ Third Street corridor: ▲ Mission Street corridor: ▲ All other lines:	15, (LRT in the future) 14, 14X 9, 9AX, 9BX, J
Southwest	▲ Subway lines: ▲ All other lines:	K, L, M, N 6, 7, 71L, F

Finally, for those screenlines and/or corridors with substantial crowding, some acknowledgment and discussion of conditions for the p.m. peak period, in addition to the p.m. peak hour, needs to be provided in the study report. If MUNI data is not available to calculate the peak hour ridership, in can be assumed to be about sixty percent of the peak period total.

Load factors for the aggregated lines are to be cited for existing, existing plus project and the horizon year during P.M. Peak Hour and Peak Period conditions (subject to the limitations of available data). It should be noted whether the project is upstream or downstream from the Maximum Load Points (MLPs) for the MUNI lines serving the project.

The estimated number of trips that transfer between regional carriers and MUNI lines serving the project should be included in the MUNI assignments. For downtown and vicinity projects, BART demand for East Bay and Peninsula directions of travel should be shown separately.

2. Regional Analysis

The impact on the regional transit system can be evaluated, in a manner similar to that used for MUNI, by using the regional transit screenlines (Figure F-2) and the regional transit screenline data (Table F-2). The regional transit operators include AC Transit, BART, Caltrain, Golden Gate Transit, SamTrans and the ferry operators.

B. Areas Outside Greater Downtown

For projects outside of the C-3, SOMA, and Mission Bay districts, the transit analysis may include a combination of directional link analysis and screenline analysis, depending on the location and nature of the project. The transit analysis techniques will be discussed during the definition of the scope of work. Capacity, ridership and load factors during P.M. Peak Hour and Peak Period conditions for the affected transit lines are to be cited for existing, existing plus project and, in some cases, the horizon year. Neighborhood projects normally need not develop estimates for cumulative transit patronage growth for the future horizon year. It should be noted whether the project is upstream or downstream from the Maximum Load Points (MLPs) for the MUNI lines serving the project. The estimated number of trips that transfer between regional carriers and MUNI lines serving the project should be included in the MUNI assignments.

III. TRANSIT OPERATIONS SERVICE LEVELS

The measurement of performance for transit service is much more complex than for roadways. Factors such as coverage, speed, convenience, reliability, safety and comfort would all need to be considered. Some of these factors are difficult to measure and the availability of data is often sparse. "Level of Service" for transit is more than a measure of the capacity of the system. However, there is one measure related to transit vehicle capacity that is more readily measured and available: the "load factor." Most transit operators develop some standards for their operations based on the load factor concept. Many consider their vehicles to be fully loaded (i.e., a load factor of 1.0) when every seat is taken. Others consider a certain number of standees acceptable on a transit vehicle. The type of vehicle (e.g., motor coach, light rail vehicle) and type of service (local, long distance, high speed) affect the choice of an acceptable load factor.

For the purposes of the analysis of impacts on a transit system, a significant impact will be considered to occur when there is an increase in demand on the transit system such that the PM peak hour or peak period level of service exceeds the acceptable level of service for a transit operator. A common measurement of the service level is the "load factor." Most transit operators define the load factor as a ratio of passengers to seats, which is considered a direct measure of the capacity. However, some operators, such as MUNI define it as a ratio of passengers to a specified capacity of a vehicle, which is not necessarily limited to the number of seats. The capacity varies by the type of MUNI transit vehicle and how it is configured. In any case, the standard of acceptance related to capacity is defined in terms of the load factor. For each transit operator, Table F-6 defines a Transit Operations Level of Service (TOLOS) of "E," which is considered an unacceptable level of service. This is compatible with the transit level of service ratings in Table 12-5 of the Highway Capacity Manual. The evaluation of the impacts of the proposed project on affected transit systems needs to include a determination of whether a TOLOS of E occurs. The evaluation will be applied in the same manner as that specified in the scoping process for the overall transit analysis, i.e., by screenline, corridor or directional link.

A. MUNI Service Levels and Load Factors

MUNI, which is the largest transit operator in the region (by trips per day), operates in an urban environment with relatively high densities and high peak hour usage. As such, the system is willing to accept higher passenger loads as a normal part of operation. The load factors for the system reflect this situation. The following discussion from a recent MUNI Short Range Transit Plan[1] explains how MUNI load factors are determined and can be applied to the MUNI system.

> Load factor is a measure of vehicle occupancy. MUNI determines maximum load factor standards to represent the greatest number of passengers that can be comfortably carried by a MUNI vehicle. Minimum load factor standards are also calculated to determine lines which are potentially over-serviced. The scheduling staff attempt to adjust schedules when the average load per vehicle during any 15-minute time period consistently exceeds the following;
>
> - 45 passengers per 30 ft. coach (MC) [26 seats]
> - 63 passengers per 40 ft. coach (MC &TC) [40 to 50 seats]
> - 94 passengers per 60 ft. coach (MC & TC) [52 to 57 seats]
> - 119 passengers per LRV [52 to 68 seats}

---

[1] "San Francisco Municipal Railway, Short Range Transit Plan, July 1997 - June 2007," November 1977, San Francisco Municipal Railway.

In practice, passenger loads will vary from bus to bus and day to day, particularly over one hour or shorter periods of the day. Consequently, in order to adjust schedules so as to maintain service in accord with these standards, it should be ensured that the average loads conform to these limits, allowing for an acceptable degree of bus to bus variation. MUNI has examined statistical variation between sampled trips, and has established ranges which correspond to achievement of acceptable average passenger loads. These ranges are applied over 15-minute intervals and schedules are adjusted if the ranges are exceeded.

Table F-3 shows load factors for the two-hour 4-6 PM peak period, by mode and route type. This is the average load factor for all trips actually made during the 4-6 PM peak period. A load factor of 1.0 means that all seats and standing space are taken and the vehicle is at maximum capacity. Since none of MUNI's lines experience that kind of crowding for the entire two-hour period, but do experience a shorter peak-of-the-peak when crowding is highest, a standard must be used that incorporates those times at the edges of the peak when lines are not as crowded. An average load factor for the this two-hour period of 0.80 is considered maximum; any line with a load factor of 0.80 or above is considered to be overcrowded. Data are from FY 1996/97. (MC= Motor Coach; TC= Trolley Coach; LRV= Light Rail Vehicle)

From this discussion, one could view the load factor ranges in Table F-5 as somewhat analogous to the LOS categories for roadway evaluations. In fact, Chapter 12 of the Highway Capacity Manual discusses transit LOS in a similar manner. Table 12-5 in the HCM presents an "A" to "F" LOS rating for transit loading standards that is similar to those found in MUNI's Table F-5. We have added a row entitled "Transit Operations Level of Service" and assigned a number for each column: "A" for the .00-.19 range; "B" for the .20-.39 range, etc. If 0.80 is considered the maximum average load factor for the 4-6 PM period, the "E" column (.80-.99+ range) might be considered as "beyond the maximum scheduled load and overcrowded", the "D" column (0.60-0.79 range) could be considered as "with standees but below the maximum scheduled load," and so forth. This provides some measurement of the level of service provided by a transit line or a group of transit lines in a manner that can be more readily calculated and understood.

B. Regional Operator Service Levels

As stated earlier, the regional transit operators serving San Francisco include AC Transit, BART, Caltrain, Golden Gate Transit, SamTrans and the ferry operators. Three operators have only one fixed route within San Francisco: BART, Caltrain and AC Transit. All AC Transit buses are routed through one point, the Transbay Terminal. Caltrain has one major terminal in San Francisco at Fourth Street and Townsend Street, and minor stations at 22nd Street, Paul Avenue and Bayshore.

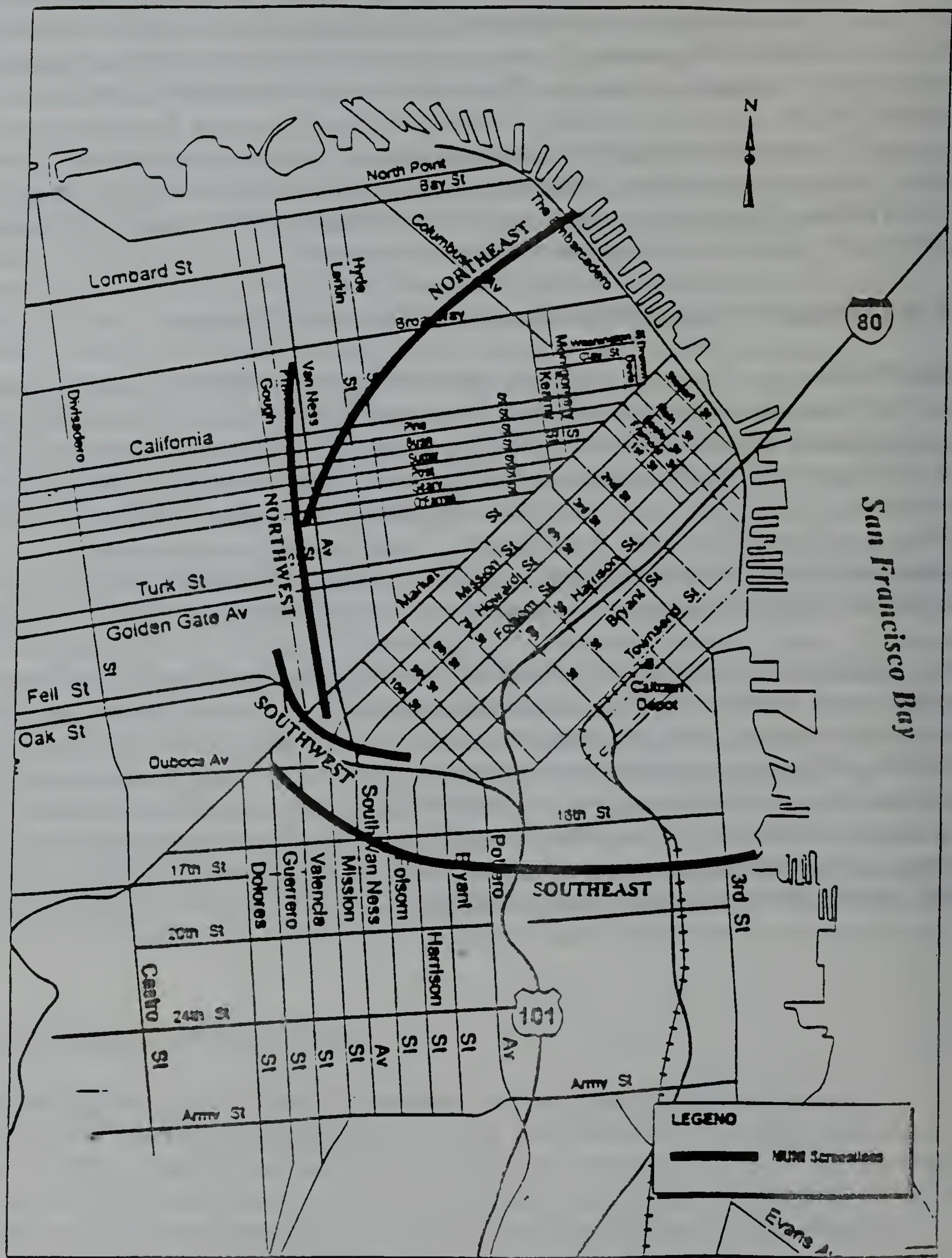
Each operator sets their own load factors and service standards, as indicated in Table F-6. However, operators vary on the manner in which these standards are articulated. Some operators are more concerned with obtaining adequate ridership rather than exceeding capacity. Each of the Peak Period Load Factors shown equates to a Transit Operations Level of Service (TOLOS) of E, i.e., at or exceeding the maximum scheduled load. While the a TOLOS of E for one operator might equate to a riders-per-seat ratio of 1.0, for another operator it may equal a ratio of 1.3. This reflects possible differences in the configuration of transit vehicles and/or a difference in the level of acceptability for higher peak loads. The measurement period for a peak loading standard can be one hour or longer. When it is longer than one hour (the time normally calculated for the transportation impact assessment), the peak hour factor can be applied to the one hour data to obtain the equivalent for the peak period associated with the load factor. For example, analyses indicates that the MUNI peak hour loads are approximately 60 percent of the two hour peak period.

C. Calculating the Transit Operations Service Level (TOLOS)

Tables F-1 through F-6 can be used for determining the TOLOS for each operator. The peak hour ridership divided by the peak hour capacity yields the peak hour load factor. For all operators except MUNI and BART, a peak hour TOLOS of E equates to a peak hour load factor of 1.0 and a capacity utilization of 100%. For BART, TOLOS E equates to a 1.0 load factor, which equals a peak hour capacity utilization of 135%. For MUNI, a peak hour TOLOS of E equates to a peak period load factor of 0.80, which equals a peak hour capacity utilization of 96%. The 96% derives from the 60% ridership and 50% capacity for the peak hour as compared to the two hour peak period.

The peak hour transit ridership for the project needs to be added to the existing ridership in the tables. The new ridership is compared to the peak hour capacity to obtain a new capacity utilization (%) with the project. If that percentage meets the threshold in Table 6 for TOLOS E, it should be noted, and its significance discussed. The same computations can apply to an individual transit line or group of lines, if that is the analysis methodology specified in the work scope. The cumulative peak hour capacity also needs to be analyzed in terms of the TOLOS standard and the project's contribution to the cumulative transit ridership.

FIGURE F-1
MUNI TRANSIT SCREENLINES



Source: Transbay Redevelopment Area Plan EIR Transportation Study, April 1998

FIGURE F-2
REGIONAL TRANSIT SCREENLINES

Source: Transbay Redevelopment Area Plan EIR Transportation Study, April 1998

TABLE F-1
MUNI SCREENLINE DATA
[1997/98 Existing Conditions - Weekday PM Peak Period/Hour]

	Existing Ridership		Capacity		Capacity Utilization	
	Period	Hour	Period	Hour	Period	Hour
Northeast						
Kearny/Stockton Corridor	3,391	2,034	7,056	3,309	48%	61%
All Other Lines	1,687	1,012	3,402	1,622	50%	62%
Subtotal	**5,078**	**3,047**	**10,458**	**4,931**	**49%**	**62%**
Northwest						
Geary Corridor	3,502	2,101	5,458	2,682	64%	78%
All Other Lines	9,607	5,764	16,004	7,278	60%	79%
Subtotal	**13,109**	**7,865**	**21,462**	**9,960**	**61%**	**79%**
Southeast						
Third Street Corridor	602	361	1,692	658	36%	55%
Mission Street Corridor	2,160	1,296	2,981	1,287	72%	101%
All Other Lines	3,690	2,214	5,197	2,267	71%	98%
Subtotal	**6,452**	3,871	**9,870**	**4,211**	**65%**	**92%**
Southwest						
Subway	9,323	5,594	13,566	5,950	69%	94%
All Other Lines	2,034	1,129	3,213	1,276	63%	89%
Subtotal	**11,357**	6,723	**16,779**	7,226	**68%**	**93%**
TOTAL ALL SCREENLINES	**35,996**	**21,506**	**58,569**	**26,328**	**61%**	**82%**

Source: SF MUNI; and Wilbur Smith Associates (January 1999 and August 1999 data)
Notes:
(1) Ridership and Capacity for trips during the weekday PM peak period/hour in the outbound direction (away from downtown), except where noted.
(2) Based on MUNI ridecheck data from 1997-1998. Peak hour and peak period data may not be consistent due to differences in reporting and sources. Only the peak hour data is used in the analysis methodology outlined in the *Guidelines.*
(3) This data is based on scheduled rather than actual service. An update of the data will be included in the final version of the *Guidelines.*

TABLE F-2
REGIONAL TRANSIT SCREENLINE DATA
[1998 Existing Conditions -- Weekday PM Peak Hour]

Screenline/Transit Provider	Existing Ridership	Peak Hour Capacity	Capacity Utilization
East Bay			
BART	15,760	12,820	123%
AC Transit	3,250	3,915	83%
Ferry	264	335	79%
Subtotal	**19,274**	**17,070**	113%
North Bay			
Golden Gate Transit Bus	3,210	4,590	70%
Golden Gate Transit Ferry	890	2,020	44%
Subtotal	**4,100**	**6,610**	62%
South Bay			
BART	7,680	8,740	88%
Caltrain	2,190	3,080	71%
SamTrans	1,278	1,525	84%
Subtotal	**11,148**	**13,345**	84%
Total of All Screenlines	**34,522**	**37,025**	**93%**

Sources:
1. *Transbay Redevelopment Area Plan EIR Transportation Study, Final Report*, April 1998; Korve Engineering
2. *Final Mission Bay SEIR*, September 17, 1998; Wilbur Smith Associates

Notes:
1. Ridership and Capacity for trips during the weekday PM peak hour in the outbound direction (away from downtown), except where noted.
2. Existing Ridership and Capacity for BART, AC Transit, Golden Gate BHTD, and Caltrain are based on values developed and presented in the Final Mission Bay SEIR, Volume I. Existing ridership and capacity for East Bay ferries and SamTrans is based on values presented in the *Transbay Redevelopment Area Plan EIR Transportation Study* (Tables 12 and 25) that were adjusted to reflect peak hour ridership and capacity.

TABLE F-3
MUNI SCREENLINE DATA
[Year 2015 Cumulative Conditions - Weekday PM Peak Period/Hour]

	Projected Demand		Capacity		Capacity Utilization	
	Period	Hour	Period	Hour	Period	Hour
Northeast						
Kearny/Stockton Corridor	4,849	2,910	7,714	3,857	63%	75%
All Other Lines	2,792	1,675	4,095	2,048	68%	82%
Subtotal	**7,641**	**4,585**	**11,809**	**5,905**	**65%**	**78%**
Northwest						
Geary Corridor	5,143	3,086	6,298	3,149	82%	98%
All Other Lines	14,154	8,492	15,753	7,877	90%	108%
Subtotal	**19,297**	**11,578**	**22,051**	**11,026**	**88%**	**105%**
Southeast						
Third Street Corridor	1,238	743	2,380	1,190	52%	62%
Mission Street Corridor	3,195	1,917	2,981	1,491	107%	129%
All Other Lines	6,195	3,717	6.065	3,033	102%	123%
Subtotal	**10,628**	**6,377**	**11,426**	**5,714**	**93%**	**112%**
Southwest						
Subway	14,154	8,493	14,280	7,140	99%	119%
All Other Lines	2,884	1,731	2,835	1,418	102%	122%
Subtotal	**17,038**	**10,224**	**17,115**	**8,558**	**100%**	**119%**
TOTAL ALL SCREENLINES	**54,604**	**32,764**	**62,401**	**31,203**	**88%**	**105%**

Source: SF MUNI, Wilbur Smith Associates (January 1999)
Notes:

(1) Projected Demand and Capacity for trips during the weekday PM peak period/hour in the outbound direction (away from downtown), except where noted.
(2) Year 2015 Projected Demand based on *Transbay Redevelopment Area Plan EIR Transportation Study.*
(3) Includes a 35.5% growth over Existing 1997/98 trips associated with the Transbay Concept Plan Alternative - Variant 2.
(4) Includes 420 additional trips along the Third Street Corridor due to the Mission Bay development.

TABLE F-4
REGIONAL TRANSIT SCREENLINE DATA
[Year 2015 Cumulative Conditions -- Weekday PM Peak Hour]

Screenline/Transit Provider	Projected Demand	Peak Hour Capacity	Capacity Utilization
East Bay			
BART	24,252	19,230	126%
AC Transit	5,292	3,920	135%
Ferry	288	335	86%
Subtotal	**29,832**	**23,485**	**127%**
North Bay			
Golden Gate Transit Bus	3,920	4,590	85%
Golden Gate Transit Ferry	1,314	2,350	56%
Subtotal	**5,234**	**6,940**	**75%**
South Bay			
BART	10.920	13,110	83%
Caltrain	5,160	5,320	97%
SamTrans	1,410	1,525	92%
Subtotal	**17,490**	**19,955**	**88%**
Total of All Screenlines	**52,556**	**50,380**	**104%**

Sources:
1. *Transbay Redevelopment Area Plan EIR Transportation Study, Final Report*, April 1998; Korve Engineering
2. *Final Mission Bay SEIR*, September 17, 1998; Wilbur Smith Associates

Notes:
1. Projected Demand and Capacity for trips during the weekday PM peak hour in the outbound direction (away from downtown), except where noted.
2. Projected Demand for 2015 is based on the *Transbay Redevelopment Plan EIR Transportation Study*. It includes the growth over existing conditions, plus trips associated with the Transbay Concept Plan Alternative - Variant 2. Capacity for 2015 is based on values presented in the *Final Mission Bay SEIR*, except for the East Bay ferry and SamTrans, which is based on the *Transbay Redevelopment Plan EIR Transportation Study*.

TABLE F-5
MUNI LOAD FACTORS
(4-6 PM Peak Period)

Transit Operations Level of Service	A	B	C	D	E
Load Factor Range	**.00-.19**	**.20-.39**	**.40-.59**	**.60-.79**	**.80-.99**
% of Lines Surveyed*	4.3%	7.1%	24.3%	47.1%	17.1%**
No. of Lines Surveyed*	3	5	17	33	12**

Source: MUNI Short Range Transit Plan 1997-2007, p. 3.7, with modifications.

* 70 lines were surveyed, including those using Light Rail Vehicles, Motor Coaches and Trolley Coaches.

** May include some lines with a load factor greater than 0.99.

TABLE F- 6
TRANSIT OPERATIONS LEVEL OF SERVICE (TOLOS) by OPERATOR

Transit Operator[1]	TOLOS	Peak Period Load Factor	Peak Hour Load Factor	Ratio: Riders per Seat	Duration of Peak Period for Load Factor	Peak Hour Capacity Utilization[2]
MUNI	E	0.80	0.96	1.0 -1.8[3]	2 hours	96%
BART	E	1.0	1.0	1.35[4]	1 hour[4]	135%
AC Transit	E	1.0	1.0	1.0	1 hour	100%
Golden Gate Transit	E	1.0	1.0	1.0	1 hour	100%
Caltrain	E	1.0	1.0	1.0	1 hour	100%
SamTrans	E	1.0	1.0	1.0	1 hour	100%
Ferries	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

[1] Not all transit operators are included.

[2] When the "peak hour capacity utilization" noted here is met or exceeded, the relevant portion of the transit system is assumed to be operating at or above the load standard, a TOLOS of E, which is an unacceptable condition.

[3] Varies by type of transit vehicle.

[4] The load factor shown for BART is for the peak hour for transbay service. During the two hour shoulder comprising the remainder of the three hour peak period, average load factors are expected to meet an objective of 1.15 for each route.

APPENDIX G

INTERIM
PARKING ANALYSIS METHODOLOGY

(Appendix 5.1of *1991 Guidelines*)

PARKING DEMAND CALCULATIONS FOR NON-DOWNTOWN AND RESIDENTIAL PROJECTS

1. **Commercial Parking Demand**

A. Commercial Long-Term Parking Demand

In general this is equivalent to the total number of journey-to-work vehicle trip ends generated by the project (both drive-alone and rideshare), divided by 2.

B. Commercial Short-Term Parking Demand

Projects outside of the C-3 Districts, SOMA and Mission Bay are to use the following equation.

$$\left[\frac{\dfrac{\left(\dfrac{\textit{Total project non-work auto person trip ends}}{\textit{1.2 persons per vehicle}}\right)}{\textit{2 one-way auto trips}}}{\textit{Parking turnover rate}}\right]$$

The turnover rate may vary for individual projects and is to be based on surveys of parking turnover for established uses comparable to those of the proposed project, preferably within the same general area. However, a turnover rate of greater than 5 per day should not be used unless supported by independent surveys reviewed and accepted by Department staff.

2. **Resident Parking Demand**

New residential projects should generally use the following ratios to estimate parking demand.

1.1 vehicles/studio or 1-bedroom apt.

1.5 vehicles/multiple bedroom unit

(Source: Recht Hausrath Assoc. 1986 downtown resident survey, Residential Conservation Rezoning Study, DCP, 1990)

Note: The foregoing resident parking demand ratios are highly generalized, averaged rates derived from surveys of a variety of housing types and locations in San Francisco. The transportation consultant would normally be expected to use these average ratios. However, there may be circumstances, such as the type, expected occupancy, or location of the housing, which justify the use of different ratios. In situations that the Department, in the course of establishing the transportation work scope, concurs that such circumstances exist, the consultant will be authorized to conduct independent surveys of resident auto ownership for similar types of projects to establish and support different ratios.

The Department will use these surveys and its own surveys carried out subsequent to publication of these guidelines to refine and develop more specific rates for a variety of housing types. When such revised standards are developed they shall be made available to the consultant at the time a work scope for a project proposal is outlined pending amendment of this document.

In certain circumstances it may be necessary to determine both estimated parking demand for the proposed project and existing residential units on the project site and/or on the general project vicinity. Estimation of parking demand for the proposed project must use one of the methods previously described.

To estimate parking demand of existing residential uses, 1980 U.S. Census data (1990 when it becomes available) may be used in neighborhood situations, for the tract in which the proposed project is located plus abutting tracts of similar residential character. If 1980 data is used, the average auto ownership rate as shown for these tracts should be multiplied by a factor of 1.14, to reflect increasing auto registration in San Francisco since 1980 and the observed tendency for occupants of newly constructed dwelling units to have greater auto occupancy rates than those of older units.

(Appendix 5.2 of *1991 Guidelines*)

PARKING DEMAND CALCULATIONS FOR C-3, SOMA and MISSION BAY PROJECTS***

1. PROJECT PARKING DEMAND

1A. *Project long term*

Project office GSF / 20,000	project rideshare demand
+	plus
Project office GSF / 275 GSF/employee x 0.11 drive alone	
+	project drive alone
demand	
Project retail GSF / 350 GSF/employee x 0.15 drive alone	
= ______________________	equals
	PROJECT LONG TERM PARKING DEMAND

1B. *Project short term*

Project office GSF / 20,000 + Project retail GSF / 1,000 — ***PROJECT SHORT TERM PARKING DEMAND***

(1A) + (1B) = TOTAL PROJECT PARKING DEMAND

*** Derived from September 1983 transportation guidelines, and May 4, 1989 memo, Dean L. Macris to City Planning Commission

2. NET ADDITIONAL PARKING DEMAND

[Total Project Parking Demand]	sum of quotients from 1A and 1B above
-	minus
[Parking Demand of Existing Uses]	apply equations 1A and 1B to existing office and retail uses on the site
= ______________________	equals
	NET ADDITIONAL PARKING DEMAND

Note: These calculations as applied to the project should be readily available, either in a footnote or an appendix.

APPENDIX H

FREIGHT DELIVERY AND SERVICE DEMAND METHODOLOGY

FREIGHT DELIVERY AND SERVICE DEMAND METHODOLOGY

Peak Hour* Generation

Number of Spaces per 1,000 GSF	=	[(1.25)(R)/9]/(2.4)

Average Hour Generation

Number of Spaces per 1,000 GSF	=	[(R)/(9)]/(2.4)

Daily Truck Trip Generation

Per Use	=	(R)X(GSF/1,000)

Where:

R	=	Daily truck trip generation per 1,000 GSF of use from Table I-1
1.25	=	Peak Hour deliveries at 25% higher rate than other hours
9	=	Number of hours deliveries are made (8:00 a.m. - 5:00 p.m.)
2.4	=	Assuming average truck delivery/pickup of 25 minutes, 2.4 trucks could be accommodated per hour

*NOTE: Peak Hour Truck Trip Generation generally occurs between 10:00 a.m. and 1:00 p.m. , and is unrelated to P.M. Peak Hour used in other transportation analyses.

TABLE H-1

DAILY TRUCK TRIP GENERATION RATE PER 1,000 SQUARE FEET OF FLOOR AREA, BY LAND USE

Office	0.21
Bank	0.30
Retail (Composite)	0.22
Wholesale	0.80
Apparel	0.45
Department Store	0.24
Furniture	0.39
Restaurant/Bar	3.60
Drug Store	3.70
Speciality Shops	0.18
Services	
Hotel	0.09
Institution	0.10
Business	1.80
Parking	0.03
Administration	0.40
Warehousing	0.46
Manufacturing	0.51
Light Industry	0.65
Residential	0.03

Source: Center City Pedestrian Circulation and Goods Movement Study (Wilbur Smith & Associates for San Francisco Department of City Planning). September 1980.

TABLE H-2

PERCENT DAILY SERVICE VEHICLE ACTIVITY BY VEHICLE TYPE

Cars and Pickups	25%
Vans	42%
Small Delivery Trucks[1] 2 axles	9%
Large Delivery Trucks[2] 2 axles	19%
Large Delivery Trucks[3] 3 axles	4%
Tractor - Trailer 4 axles	1%

1 Characterized as a small courier, U.S. Mail truck or step van

2 Characterized as a mid-size Hertz rental truck, beverage truck or small furniture truck

3 Characterized as a garbage truck

Source: DKS Associates, 1990

APPENDIX I

TYPICAL TRANSPORTATION MITIGATION MEASURES FOR THE DOWNTOWN AREA

TYPICAL TRANSPORTATION MITIGATION MEASURES FOR THE DOWNTOWN AREA

In the downtown area, a number of transportation related items are required by law which would serve to mitigate impacts, and are summarized here for informational purposes. They should also be referred to in the Mitigation Section of the EIR, not as mitigation measures specific to the project but rather, as generic mitigation measures applicable in the downtown area.

These measures include: contribution of funds for increased transit service per the Transit Impact Development Fee, Board of Supervisors Ordinance #224-81; when auto parking is provided, provision of off-street bicycle storage pursuant to Section 155 of the City Planning Code; provision of transportation brokerage services to coordinate a transportation management program and participation in a network of transportation brokers pursuant to Section 163 of the City Planning Code; priority use of off-street parking in the project for the physically handicapped, travelers in car pools and van pools, and short-term trips by business visitors and clients, pursuant to Section 155 of the City Planning Code; and provision of building directories and signs for service elevators in loading areas, pursuant to Section 155 of the City Planning Code. Additional generic measures apply which are not related to mitigation of transportation impacts.

Additional measures which are not required by legislation but which would also serve to mitigate transportation impacts and are generally included in transportation analyses as a policy matter include the following.

Measures that could be implemented by the project sponsor as part of the project:

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.
- Secure bicycle facilities would be provided for project commuters and short-term visitors which would, at a minimum, provide safe shelter for the number of spaces required in the project.
- While subsurface sidewalk vaults are discouraged, the project sponsor

would design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design shall be of sufficient strength to carry maximum vehicular live and dynamic loads. Design of the vault area to accommodate street trees would also be made, subject to Department of Public Works approval. In addition, should vaults exist or be installed as part of the project, the project sponsor would accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, trolley wire poles, signs, benches, transit shelters, etc. within project vault areas. Placement of such improvements is entirely within the discretion of the City. Should the City at any future time determine its need for any subsurface sidewalk space occupied by the project, for any reason, the project sponsor agrees to waive all rights of appeal of revocation of permits to occupy such space.

- During the construction period, the project sponsor would cause to limit construction truck movement to the hours between 9:00 a.m. and 3:30 p.m., and to prohibit staging or unloading of equipment and materials during the periods of 7:30 a.m. to 9:00 a.m. and 3:30 p.m. to 6:00 p.m., to minimize peak period traffic conflicts and to accommodate queuing of MUNI buses prior to the peak hours of service. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Department of Parking and Traffic, the Fire Department, MUNI, and the Department of City Planning to determine feasible traffic management and mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction or which later become known.

- The project sponsor would, in cooperation with the Municipal Railway, install eyebolts or make provision for the direct attachment of eyebolts for MUNI trolley wires on the proposed building whenever necessary or agree to waive all rights to refuse the attachment of eye bolts to the proposed building if such attachment is done at City expense.

- The parking driveway would include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure. The parking entrance would contain a message sign indicating when the parking facility is full.

Measures that could be implemented by public agencies:

- Coordinate work schedules of Pacific Gas and Electric Company and other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

- The City could act upon or endorse the implementation of transportation mitigations described in: the Mission Bay EIR; and in the South of Market EIR. The measures include those related to roadways, freeway ramps, transit and transportation system management. Such measures include: supporting rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; increased funding for San Francisco and regional transit agencies to expand existing non-rail transit service; providing exclusive transit lanes; encouraging car pools, van pools and bicycle use; improving pedestrian circulation within downtown San Francisco; and providing transportation brokerage services.

- Some of the implementing actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. All except such things as providing transportation brokers would require funding from or approval by MTC. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such measures as the Transit Impact Development Fee assessment by San Francisco Ordinance 224-81 which would contribute directly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

APPENDIX J

REQUIRED TRANSPORTATION MANAGEMENT PROGRAMS AND BROKERAGE SERVICES FOR C-3 AND SOMA OFFICE DEVELOPMENT

REQUIRED TRANSPORTATION MANAGEMENT PROGRAMS AND BROKERAGE SERVICES FOR C-3 AND SOMA OFFICE DEVELOPMENT

SEC. 163.* TRANSPORTATION MANAGEMENT PROGRAMS AND TRANSPORTATION BROKERAGE SERVICES IN C-3 AND SOUTH OF MARKET DISTRICTS.

(a) Purpose. This Section is intended to assure that adequate measures are undertaken and maintained to minimize the transportation impacts of added office employment in the downtown and South of Market area, in a manner consistent with the objectives and policies of the Master Plan, by facilitating the effective use of transit, encouraging ridesharing, and employing other practical means to reduce commute travel by single-occupant vehicles.

(b) Requirement. For any new building or additions to or conversion of an existing building in C-3 and South of Market Districts where the gross square feet of new, converted or added floor area for office use equals at least 100,000 square feet, or, in the case of the SSO District, 25,000 square feet, the project sponsor shall be required to provide on-site transportation brokerage services for the actual lifetime of the project, as provided in this Subsection. Prior to the issuance of a temporary permit of occupancy (for this purpose Section 149(d) shall apply), the project sponsor shall execute an agreement with the Department of City Planning for the provision of on-site transportation brokerage services and preparation of a transportation management program to be approved by the Director of Planning and implemented by the provider of transportation brokerage services. The transportation management program and transportation brokerage services shall be designed:

(1) To promote and coordinate effective and efficient use of transit by tenants and their employees, including the provision of transit information and sale of transit passes on-site;

(2) To promote and coordinate ridesharing activities for all tenants and their employees within the structure or use;

(3) To reduce parking demand and assure the proper and most efficient use of on-site or off-site parking, where applicable, such that all provided parking conforms with the requirements of Article 1.5 of this Code and project approval requirements;

(4) To promote and encourage project occupants to adopt a coordinated flex-time or staggered work hours program designed to more evenly distribute the arrival and departure times of employees within normal peak commute periods;

(5) To participate with other project sponsors in a network of transportation brokerage services for the respective downtown or South of Market area;

(6) To carry out other activities determined by the Department of City Planning to be appropriate to meeting the purpose of this requirement. (Added by Ord. 414-85, App. 9/17/85; amended by Ord. 115-90, App. 4/6/90)

*Source: City and County of San Francisco Planning Code, Article 1.5, Section 163, December 1998.

SELECTED SOURCES

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APPENDIX VI

Downtown Transit Impact Development Fee Ordinance

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AMENDING CHAPTER 38 OF THE SAN FRANCISCO ADMINISTRATIVE CODE BY AMENDING SECTIONS 38.1, 38.2, 38.5 AND 38.8 THEREOF AND BY ADDING SECTION 38.8.5 THERETO RELATING TO THE PRINCIPLES TO BE USED IN CALCULATING THE AMOUNT OF THE TRANSIT IMPACT DEVELOPMENT FEE AND PROVIDING FOR ADJUSTMENT TO THE TRANSIT IMPACT DEVELOPMENT FEE IN CASES OF CONVERSION FROM OTHER USES TO OFFICE USE TO INCORPORATE THE TRIP GENERATION RATE OF PRIOR USE SO AS TO ACCURATELY MEASURE THE INCREMENTAL IMPACT OF THE CONVERSION TO OFFICE USE ON THE SAN FRANCISCO MUNICIPAL RAILWAY.

NOTE: Additions or substitutions are underlined; deletions are indicated by ((double parentheses)).

Be it ordained by the People of the City and County of San Francisco:

Section 1. Sections 38.1, 38.2 and 38.5 of Chapter 38, the San Francisco Administrative Code, are hereby amended to read as follows:

Section 38.1. Definitions.

For the purposes of this chapter, the following definitions shall apply:

(a) BOARD. The Board of Supervisors of the City and County of San Francisco.

(b) CERTIFICATE OF FINAL COMPLETION AND OCCUPANCY shall mean a certificate of final completion and occupancy issued by the Superintendent, Bureau of Building Inspection, pursuant to the Building Code.

(c) CITY. The City and County of San Francisco.

(d) DOWNTOWN AREA. That portion of the City and County bounded by Van Ness Avenue as far north as Broadway, from Van Ness Avenue and Broadway easterly on Broadway to Sansome Street;

southeasterly on the Embarcadero to Berry Street; then southwesterly on Berry Street to De Haro Street; then southerly on De Haro Street to Alameda Street; then westerly on Alameda Street to Bryant Street; then northerly on Bryant Street to Thirteenth Street; then westerly on Thirteenth Street to South Van Ness Avenue; then northerly to Van Ness Avenue. The downtown area includes all property with an address on any of or within the area surrounded by the above enumerated boundary streets.

(e) GROSS SQUARE FOOT OF OFFICE USE. A square foot of floor space within a structure, whether or not within a room, to be occupied by, or primarily serving, office use.

(f) NEW DEVELOPMENT. Any new construction, addition, extension, conversion, or enlargement of an existing structure which includes any gross square feet of office use.

(g) OFFICE USE. Any structure or portion thereof intended for occupancy by business entities which will primarily provide clerical, professional or business services of the business entity, or which will primarily provide clerical, professional or business services to other business entities or to the public, at that location.

(h) PEAK PERIOD. The total number of minutes in an average working day, determined in accordance with Section 38.5(a), during which ((the passenger demand on)) the Municipal Railway ((system would require it to deploy)) deploys all its operable equipment so that the system experiences no excess vehicular capacity.

(i) PUBLIC TRANSIT SERVICE. Services of the Municipal Railway of the City and County of San Francisco.

/ / /

Section 38.1. Findings.

All office uses in the downtown area are benefited by virtue of the availability of the Municipal Railway as a means of transit for employees and customers.

The demand for public transit service from downtown area office uses imposes a unique burden on the Municipal Railway, qualitatively different than the burden imposed by other uses of property in San Francisco. The need for that level of service provided by the Municipal Railway during peak periods can be attributed in substantial part to office uses of property in the downtown area.

New developments will bring increased need for public transit service in the downtown area during peak periods. The Municipal Railway will be burdened with the demands of transporting a larger number of passengers. Future increases in demand for public transit service are therefore attributable directly to new development in the downtown area increasing the number of persons using the Municipal Railway during peak periods.

This increased demand must be met not only by the acquisition of new rolling stock and the addition of new services, but also by the employment of additional personnel and fuel to operate the added facilities, and the maintenance, repair and replacement of the additional facilities as they wear out or become obsolete.

That level of additional cost incurred by the City in expanding and operating, maintaining, repairing and replacing its public transit facilities to accommodate the additional peak-period person-trips generated by office use in new developments can be translated into a cost per gross square foot of office use in the new developments. The cost of expanding

current services and adding new services is directly proportional to the amount of peak-period Municipal Railway travel generated by new development. Development of office uses causes more additional Municipal Railway peak-period person-trips, per square foot, than the development of any other use of property in the downtown area. It is desirable to impose the increased burden of serving such use, through a fee approximating the cost per square foot, directly upon the developer of new development generating the need.

Even though other uses such as retail use also generate Municipal Railway peak-period person trips (and even if a particular alternate use were to generate more such trips than do office uses), the Board refrains from imposing the Transit Impact Development Fee on such uses at this time, and in that regard finds: (1) The vast majority of new commercial space in the downtown area will be devoted to office uses, and the primary cause for new peak-period Municipal Railway passengers will be the development of new office uses; and (2) a significant proportion of the new retail and service uses which will hereafter be developed in the downtown area will be constructed in connection with new office developments and, for that reason, limitation of the Fee to office uses both ameliorates the economic impact of the Fee on developers of office space and encourages the development of projects with mixed uses consisting of office, retail and service uses.

Sec. 38.5. Transit Impact Development Fee Schedule.

This Transit Impact Development Fee Schedule is set at an actuarially sound level to insure that the proceeds from the Transit Impact Development Fee from each new development is sufficient, including such earnings as may be derived from

... and amortization thereof ... operating costs incurred in providing and operating additional required peak-period public transit service capacity, over the life of such new development; without, however, exceeding five dollars ($5.00) per square foot.

The following principles have been and, in the future, shall be observed in calculating the amount of the fee:

(a) The times during the day which constitute the peak period shall be determined functionally as that period of time during which a decision to add additional scheduled vehicle runs would require Muni to purchase or lease additional vehicles because the existing available fleet is fully committed in the sense that vehicles are actually in revenue service, being held for deployment later in the peak period, in reserve, or scheduled for repair or preventive maintenance.

(b) State, federal and private operating and capital subsidies for the cost of providing additional peak period service shall be assumed only when and to the extent that receipt of such subsidies is reasonably probable.

(c) The calculation of future costs of providing service for additional passengers during the peak periods should assume no increase in the level of crowding for the system as a whole or material decreases in the frequency of service.

(d) The cost of electricity shall be calculated based on the price which the City could receive for such power were it sold to PG&E assigned customers rather than the cost at which it is furnished to the Municipal Railway by the Hetch Hetchy Water and Power Department.

(e) Costs and revenue attributable to trips taken outside the peak periods by office workers and visitors shall not be

(f) In calculating the revenue from additional peak period trips, a weighted average fare (reflecting the frequency of trips paid for by cash fares as opposed to fast passes) shall be estimated. In making this calculation, the average fare for a fast pass trip shall be determined by dividing the cost of a fast pass by an estimate of the total number of trips per month (whether or not taken in the peak period) which will be taken by a fast pass purchaser. In projecting future revenues, peak period revenue shall be assumed to increase at the same rate as peak period operating costs.

(g) Where feasible, actual information for the fiscal year for which the fee is being calculated should be used. Where estimates must be made, those estimates should be based on such information as the General Manager of the Public Utilities Commission or his delegate considers reasonable for the purpose. Possible changes in the operation or productivity of the Municipal Railway shall be taken into account only if such changes are the announced policy of the Municipal Railway or the Public Utilities Commission and the impact of such change on peak period costs or revenues can be estimated with reasonable certainty.

The Transit Impact Fee Schedule shall be as follows:

FOR EACH GROSS SQUARE FOOT OF OFFICE USE IN NEW DEVELOPMENT IN THE DOWNTOWN AREA. $5.00*

*Formula fee rate calculated (at $9.18) to be in excess of $5.00; limited to $5.00.

/ / /

Section 2. Section 38.6 of Chapter 38 of the San Francisco Administrative Code is hereby amended to read as follows:

Section 38.6. Setting of Fee.

Each developer, prior to obtaining a building permit for any new development in the downtown area after the effective date of this ordinance, shall file with the General Manager of the Public Utilities Commission, on such form as he may develop, a report indicating the number of gross square feet of the new development intended for office use. Each developer of a new development for which a building permit was issued prior to the effective date of this ordinance and for which a final certificate of occupancy had not been issued prior to the effective date of this ordinance shall file the same report prior to obtaining a final certificate of occupancy. The General Manager shall determine the number of gross square feet of office use to which the Transit Impact Development Fee Schedule applies, (crediting the number of gross square feet of office use being eliminated as part of the project and)) disregarding the number of gross square feet of office use being retained, determine the useful life category if the Fee Schedule includes useful life categories, apply the fee schedule, and determine the fee which reflects the additional cost of peak-period public transit service generated by the office use in the new development. The applicant shall be notified of the General Manager's determination in writing. The General Manager shall mail a copy of his determination to the applicant. The applicant may appeal the determination of the number of gross square feet of office use subject to the fee, the adjustment factor described in Section 38.6.5(b), or the useful-life category if the fee schedule includes useful life categories, to the Public Utilities

Commission in order to reduce the amount of the fee obligation. If the applicant notifies the General Manager of his acceptance of the determination, or does not appeal to the Public Utilities Commission within 15 days of the date of personal service or mailing of notice of the General Manager's determination, the General Manager's determination shall be final, and a notice of such determination shall be provided the Central Permit Bureau. The Central Permit Bureau may not issue a building permit for any new development in the downtown area until it has received notice from the General Manager of the Public Utilities Commission or the Public Utilities Commission of the final determination of the amount of the Transit Impact Development Fee to be paid.

Section 3. Chapter 38 of the San Francisco Administrative Code is hereby amended by adding Section 38.6.5 thereto, reading as follows:

Section 38.6.5. Credits for Prior Uses.

In determining the number of gross square feet of office use to which the Transit Impact Development Fee Schedule applies, the General Manager shall provide for the following credits:

a. For prior office uses, there shall be a credit for the number of gross square feet of office use being eliminated as part of the project.

b. For prior uses other than office use, there shall be a credit for the number of gross square feet of non-office use being eliminated multiplied by an adjustment factor to reflect the difference between office building peak period municipal railway trip generation rates and peak period municipal railway trip generation rates for other uses. The adjustment factor shall be determined by the General Manager as follows:

(1) The adjustment factor shall be a fraction, the

... shall determine, in consultation with the Department of City Planning applied to the change of prior use being eliminated by the project.

(2) The denominator of the fraction shall be the peak period municipal railway trip generation rate for office use used in the most recent calculation of the Transit Impact Development Fee Schedule approved by the Board of Supervisors.

(3) Notwithstanding the foregoing, the adjustment factor shall not exceed 1.

Section 4. The Board finds and declares that the principles to be employed in calculating the amount of the fee as set forth in Section 1 above are wholly consistent with the Board's intention in enacting the Transit Impact Development Fee Ordinance, with the cost analysis presented to the Board by Bruce Bernhard at the time the ordinance was enacted (which, after correction of certain errors, estimated the loss per square foot to be $6.57, which estimate the Board accepts as reasonable), with the Transit Impact Development Fee Cost Studies for fiscal years 1980-81 and 1981-83 approved by the Board by Resolution 880-83, and with the revised Transit Impact Development Fee Cost Study prepared by Touche Ross & Co. dated February 23, 1984 making certain revisions to the estimation of the FY 1980-81 net present value of the loss which would be incurred in providing additional peak-period transit service (resulting in a net reduction of said loss from $8.60 to $8.36 per square foot). The Board hereby approves the assumptions, methodology and conclusions stated in said revised Transit Impact Development Fee Cost Study. The Board accordingly finds that as of the date the Ordinance was enacted, and at all times thereafter, the net

present value of the loss which would be incurred in providing additional peak period transit service was in excess of $5.00 per square foot.

Section 5. The Board of Supervisors intends that the portion of the amendment to Chapter 38 adding Section 38.8.5 be given full retroactive effect so that the credits allowed by Section 38.8.5 shall be afforded to all developers who have paid the fee or will hereafter be required to do so.

Section 6. The amendments to Chapter 38 set forth in Sections 2 and 3 of this ordinance shall not be effective unless and until, prior to June 25, 1984, the City Attorney has advised the Clerk of the Board that either (1) the Superior Court for the County of San Francisco has entered an order approving a partial settlement of Russ Building Partnership, et al. v. City and County of San Francisco, No. 780-795, providing that no claims for costs, attorney's fees or expenses may be sought by the class action plaintiff therein on account of the adoption of Section 2 and 3 of this ordinance; or, alternatively, (2) that the Superior Court has determined that no such court order approving such partial settlement is required by law.

APPROVED AS TO FORM:

Deputy City Attorney

0125D

Passed for Second Reading Board of Supervisors, San Francisco	Read Second Time and Finally Passed Board of Supervisors, San Francisco
MAY 7 1984	MAY 1 4 1984
Ayes: Supervisors Britt, Hongisto, Kennedy, Kopp, Maher, Molinari, Nelder, Renne, Silver, Walker, Ward.	Ayes: Supervisors Britt, Hongisto, Kennedy, Kopp, Maher, Molinari, Nelder, Renne, Silver, Walker, Ward.
Noes: Supervisors NELDER	Noes: Supervisors NELDER
Absent: Supervisors WALKER	Absent: Supervisors MAHER RENNE WALKER WARD
	I hereby certify that the foregoing ordinance was finally passed by the Board of Supervisors of the City and County of San Francisco.
John L. Taylor Clerk	John L. Taylor Clerk
199-84-1 File No.	5/15/84 Approved
	Dianne Feinstein Mayor

APPENDIX VII

San Francisco Trip Reduction Efforts: Relationship to Regional Transportation Control Measures

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San Francisco Trip Reduction Efforts: Relationship to Regional Transportation Control Measures

TCM	Local Implementation
1. **Support Voluntary Employer-Based Trip Reduction Programs** Provide assistance to regional and local ridesharing organizations; advocate legislation to maintain and expand incentives (e.g. tax deductions/credits). Provide assistance to employers within the city.	The San Francisco transportation management and brokerage program continues to focus on the following activities: 1) compliance monitoring of buildings required to have a TDM program, 2) development of a rideshare parking brokerage program in the downtown area, and 3) continued implementation of the City and County Employee Commute Assistance Program (CECAP).
3. **Improve Areawide Transit Service.** Increase local bus service as revenues become available. Support transit improvements defined in MTC's Regional Transportation Plan (RTP), which serve current or planned high-density areas with mixed land uses. Improve transit access to SFO (BART extension). Replace transit buses with clean-fuel buses.	Without additional sources of operating revenues, increasing local bus service is difficult. Regarding alternative fuels, MUNI already has an extensive trolley bus fleet. The Authority has provided funded to MUNI to test alternative fueled buses.
4. **Improve Regional Rail Service.** Implement light rail service on Third Street (Bayshore Corridor) in San Francisco. Extend Caltrain to downtown San Francisco. BART to San Francisco International Airport.	Construction has begun on the initial operating segment (phase 1) of the Third Street Light Rail Project. The overwhelming majority of the funding for Phase 1 comes from the Proposition B sales tax program. The Authority is actively pursuing funding for the Caltrain Downtown Extension to a reconstructed Transbay Terminal and the Third Street Central Subway through the Regional Transit Expansion Agreement and 2001 Regional Transportation Plan. These projects are included in the Capital Improvement Program (see chapter 8).

TCM	Local Implementation
5. **Improve Access to Rail and Ferries.** Improve feeder bus service to rail and ferries. Improve bicycle and pedestrian facilities at stations and access to rail/ferry stations. Increase private shuttles from transit stations to employment centers. Encourage BART and Caltrain to provide preferential parking for electric vehicles.	Installation of an Automatic Train Control System now permits more frequent and reliable light rail service to the Ferry Building. The MUNI Metro extension to Mission Bay provides direct light rail service to the Caltrain depot. The F-Line connects the Ferry Terminal to waterfront destinations north to Fisherman's Wharf and west to the Castro.
6. **Improve inter-city rail service.** Consider high speed rail between downtown San Francisco and Los Angeles.	The reconstructed Transbay Terminal will be designed to accommodate high speed rail. The EIR/EIS for this project is currently underway. The Authority is seeking inclusion of this project in the 2001 Regional Transportation Plan through the Regional Transit Expansion Agreement.
7. **Improve ferry service.** Purpose is expansion of ferry service as funding allows. MTC has prepare a long term ferry service plan and will allocate funds under its control consistent with the final recommendations of this plan.	The Port of San Francisco has received funding for expansion of ferry docking facilities at Pier ½ and construction of a new ferry landing facility at China Basin, near Pacific Bell Ballpark (completed). Pending approval of the 2002 STIP, Golden Gate Transit will receive funding for a lay berth and rehab and upgrade of their facilities at the San Francisco Ferry Terminal (See Chapter 8).
8. **Construct carpool and express bus lanes on freeways.** The region, in cooperation with Caltrans, has adopted a 2005 HOV master plan that includes 534 lane-miles of HOV lanes compared to the 218 lane-miles at present.	Freeway HOV lanes currently exist on the approaches to the Bay Bridge and Golden Gate Bridge. The first phase of the 2005 HOV Master Plan calls for the creation of an HOV lane on I-280 east of US 101. San Francisco, in cooperation with Caltrans, has complemented this effort by providing an HOV on-ramp at Sterling Street.

San Francisco Trip Reduction Efforts: Relationship to Regional Transportation Control Measures

TCM	Local Implementation
9. **Improve bicycle access and facilities.** This TCM proposes an expansion of the carrying capacity of buses, ferries and rail transit; and it encourages employers and developers to provide bicycle access and facilities.	The Department of Parking and Traffic hired a full-time Bicycle Coordinator/Planner. In March 1997, the department adopted a citywide Bicycle Plan, which will be used to guide future bicycle improvements and programs. DPT is about to release an RFP for a major update to the bicycle plan. In addition, city legislation now requires showers and lockers in new buildings and those undergoing major renovations, as well as bicycle parking in existing and new garages.
10. **Youth transportation.** Support programs to reduce youth transit fares, encourage school carpools and purchase clean fuel school buses.	MUNI offers youth fares and youth monthly passes, and conducts public education campaigns in the schools.
11. **Install freeway traffic operations system (TOS).** Purpose is to improve flows on freeways by increasing average travel speeds and eliminating major tie ups more quickly.	Implementation of this TCM is being coordinated by Caltrans. The Authority has programmed funds for TOS projects on US 101, US 1, and I-280. In addition, the Department of Parking and Traffic is coordinating with Caltrans to link the freeway TOS with the City's Integrated Traffic Management System (See Chapter 8)
12. **Improve arterial traffic management.** MTC will support existing and expanded signal timing programs and encourage transit signal preemption.	Department of Parking and Traffic has undertaken a long-term project to replace aging signal controllers and install signals with transit preemption capabilities on transit preferential streets. Furthermore, the Integrated Traffic Management System is providing a mechanism for coordinating all of the City's signals at a centralized traffic management control center. The Authority has prioritized STP/CMAQ and RIP funds for signal timing, where air quality improvements can be demonstrated) and signal preemption projects by MUNI and the Department of Parking and Traffic. (See Chapter 8).
13. Transit Use Incentives. Measure encourages coordination between transit operators on routes, schedules, fares, and payment methods (e.g. passes).	Implementation of this TCM requires additional funds from regional, state, or federal sources. MUNI is one of the operators participating in MTC's demonstration of TransLink, a smart card. Testing should begin late 2001.

TCM	Local Implementation
14. **Improve Rideshare/Vanpool Services and Incentives.**	The City's TMA activities include both required and voluntary programs for certain employers in the downtown core. These programs include rideshare and vanpool incentives. The City also supports City CarShare by helping to secure parking spaces for carsharing vehicles, encouraging developers to incorporate City CarShare, and providing technical assistance, as appropriate.
15. **Local Clean Air Plans, Policies and Programs.** This measures encourages localities to incorporate air quality beneficial policies into local planning and development activities that will reduce the number and length of single occupant vehicle trips.	The City's land use and parking regulations, along with the Transit Development Impact Fee, constitute development regulations for the mitigation of new travel demand.
16. **Intermittent Control Measure/Public Education.** BAAQMD's "Spare the Air" program will be used to encourage the public to reduce motor vehicle use on days ozone levels may be exceeded.	Implementation of this TCM is occurring through the BAAQMD and the City's TMA.
17. **Conduct demonstration projects.** Focus is to promote demonstration projects to develop new strategies to reduce motor vehicle emissions.	San Francisco is responding to this measure within the scope discussed earlier in this Chapter for transportation management initiatives. For example, current projects include the testing of CNG buses for MUNI and electric vehicles for the City fleet and supporting City CarShare.

TCM	Local Implementation
18. **Implement Revenue Measures.** Develop revenue sources (e.g. regional gas tax, continuation of CMAQ) needed to implement mobility improvements and user incentives.	The Authority is working with MTC through the Bay Area Partnership to identify new revenues sources. ACA4, a constitutional amendment on the March 2002 ballot, would permanently dedicate state sales tax on gasoline to transportation purposes. It requires a majority vote statewide to pass. Also, San Francisco taxes all paid parking 25%. Some of the revenues go to fund transit. The city planning code mandates a rate structure for garages that discourages long-term parking downtown.
19. **Pedestrian Travel.** Promote development patterns that encourage walking and circulation policies that emphasize pedestrian travel and modify lzoning ordinances to include pedestrian-friendly design standards.	The General Plan and Planning Code have supported pedestrian friendly, transit-oriented development for decades. The city has also formed an interdepartmental Pedestrian Safety Working Group that includes departments such as the Department of Health Services, Department of Public Works, Department of Parking and Traffic, MUNI, and the Planning Department.
20. **Promote Traffic Calming Measures**	The Department of Parking and Traffic has recently established a Livable Communities/Streets program that addresses traffic-calming opportunities, pedestrian safety, and school safety. The Board of Supervisors has adopted traffic calming guidelines, and the Authority has prioritized funds for traffic calming projects in the 2002 State Transportation Improvement Program and with TEA21 STP/CMAQ funds. These projects are included in the Capital Improvement Program (See Chapter 8).

APPENDIX VIII

CIP Project Cost/Funding Matrices

Notes:
(1) The CECAP now resides in the Department of the Environment.

Cost Funding Matrix

819 Harvey Milk Plaza Sponsor: ART COMM

Cost/Funding Item	FY 1998/99	FY 1999/00	Totals
COST			
Planning	85,000	0	85,000
Totals:	**85,000**	**0**	**85,000**
FUNDING			
Other Local	50,000	0	50,000
TLC Planning	0	35,000	35,000
Totals:	**50,000**	**35,000**	**85,000**
ANNUAL FUNDING OVERAGE:	**-35,000**	**35,000**	**0**
CUMULATIVE FUNDING OVERAGE:	**-35,000**	**0**	

Cost Funding Matrix

820 16th Street BART Station Area Community Design Pla   Sponsor: BART

Cost/Funding Item	FY 1997/98	FY 1998/99	Totals
COST			
Planning	25,000	0	25,000
Design	0	200,000	200,000
Construction	0	1,757,500	1,757,500
Totals:	**25,000**	**1,957,500**	**1,982,500**
FUNDING			
TLC Capital	0	1,697,500	1,697,500
Other Local	0	130,000	130,000
Prop. B Match	0	130,000	130,000
TLC Planning	25,000	0	25,000
Totals:	25,000	1,957,500	1,982,500
ANNUAL FUNDING OVERAGE:	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	

Cost Funding Matrix

830 16th Street Mission Station Northeast Plaza Improv Sponsor: BART

Cost/Funding Item	FY 2002/03	FY 2003/04	Totals
COST			
Environmental	36,000	0	36,000
Design	610,091	0	610,091
Construction	0	3,154,392	3,154,392
Totals:	646,091	**3,154,392**	**3,800,483**
FUNDING			
TLC Capital	0	1,624,483	1,624,483
Regional Improvement Funds (RIF)	646,091	1,529,909	2,176,000
Totals:	**646,091**	**3,154,392**	**3,800,483**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

817 24th Street BART Community Design Plan   Sponsor: BART

Cost/Funding Item	FY 1998/99	Totals
COST		
Planning	50,000	50,000
Totals:	50,000	50,000
FUNDING		
Other Local	15,000	15,000
TLC Planning	35,000	35,000
Totals:	**50,000**	**50,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

810 Automatic Fare Collection   Sponsor: BART

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Design	0	477,000	0	477,000
Construction	0	1,045,000	0	1,045,000
Totals:	**0**	**1,522,000**	**0**	**1,522,000**
FUNDING				
Regional Improvement Funds (RIF)	0	1,522,000	0	1,522,000
Totals:	**0**	**1,522,000**	**0**	**1,522,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

827 Comprehensive Plans Embarcadero & Montgomery Stati Sponsor: BART

Cost/Funding Item	FY 2002/03	Totals
COST		
Environmental	500,000	500,000
Totals:	500,000	500,000
FUNDING		
Regional Improvement Funds (RIP)	500,000	500,000
Totals:	500,000	500,000
ANNUAL FUNDING OVERAGE:	0	0
CUMULATIVE FUNDING OVERAGE:	0	

Cost Funding Matrix

751 Embarcadero Station Bicycle Facility   Sponsor: BART

Cost/Funding Item	FY Previous	FY 1998/99	FY OutYear	Totals
COST				
Construction	0	183,000	0	183,000
Totals:	**0**	**183,000**	**0**	**183,000**
FUNDING				
AB434	0	76,000	0	76,000
Other Local	0	107,000	0	107,000
Totals:	**0**	**183,000**	**0**	**183,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

831 Talking Signs at Downtown San Francisco Stations Sponsor: BART

Cost/Funding Item	FY 2002/03	FY 2003/04	Totals
COST			
Design	126,000	0	126,000
Construction	0	2,034,000	2,034,000
Totals:	**126,000**	**2,034,000**	**2,160,000**
FUNDING			
Regional Improvement Funds (RIF)	126,000	2,034,000	2,160,000
Totals:	**126,000**	**2,034,000**	**2,160,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

839 Church Street Apartments Streetscape   Sponsor: BRIDGE Hous

Cost/Funding Item	FY 1999/00	Totals
COST		
Construction	424,664	424,664
Totals:	**424,664**	**424,664**
FUNDING		
TLC Capital	424,664	424,664
Totals:	**424,664**	**424,664**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

775 Bicycles for Gardeners   Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2001/02	FY OutYear	Totals
COST				
Procurement	0	28,000	0	28,000
Totals:	**0**	**28,000**	**0**	**28,000**
FUNDING				
AB434	0	28,000	0	28,000
Totals:	**0**	**28,000**	**0**	**28,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

762 Bikes for Gardeners   Sponsor: CECAP/CCSF

Cost/Funding Item	FY Previous	FY 1999/00	FY OutYear	Totals
COST				
Procurement	0	11,000	0	11,000
Totals:	**0**	**11,000**	**0**	**11,000**
FUNDING				
AB434	0	11,000	0	11,000
Totals:	**0**	**11,000**	**0**	**11,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

761 Clean Air Vehicles Sponsor: CECAP/CCSF

Cost/Funding Item	FY Previous	FY 1999/00	FY OutYear	Totals
COST				
Procurement	0	904,000	0	904,000
Totals:	0	904,000	0	904,000
FUNDING				
AB434	0	120,000	0	120,000
Other Local	0	784,000	0	784,000
Totals:	0	904,000	0	904,000
ANNUAL FUNDING OVERAGE:	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	

Cost Funding Matrix

779 CNG Fueling Facility at Golden Gate Park Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2001/02	FY OutYear	Totals
COST				
Construction	0	50,000	0	50,000
Totals:	**0**	**50,000**	**0**	**50,000**
FUNDING				
AB434	0	50,000	0	50,000
Totals:	**0**	**50,000**	**0**	**50,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

735 CNG Vehicle Replacement Program Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY OutYear	Totals
FUNDING					
AB434	1,064,650	180,000	99,000	0	1,343,650
AB434-Regional	1,133,048	900,000	965,000	0	2,998,048
Totals:	**2,197,698**	**1,080,000**	**1,064,000**	**0**	**4,341,698**
ANNUAL FUNDING OVERAGE:	**2,197,698**	**1,080,000**	**1,064,000**	**0**	**4,341,698**
CUMULATIVE FUNDING OVERAGE:	**2,197,698**	**3,277,698**	**4,341,698**	**4,341,698**	

Cost Funding Matrix

767 Electric Charging Station   Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Procurement	0	50,000	0	50,000
Totals:	**0**	**50,000**	**0**	**50,000**
FUNDING				
AB434	0	50,000	0	50,000
Totals:	**0**	**50,000**	**0**	**50,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

754 Electric Recharging Stations Sponsor: CECAP/CCSF

Cost/Funding Item	FY Previous	FY 1998/99	FY OutYear	Totals
COST				
Construction	0	452,000	0	452,000
Totals:	0	**452,000**	**0**	**452,000**
FUNDING				
AB434	0	150,000	0	150,000
General Fund	0	162,000	0	162,000
Other Local	0	140,000	0	140,000
Totals:	**0**	**452,000**	**0**	**452,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	0	**0**	0	

Cost Funding Matrix

734 HOJ Shuttle Service   Sponsor: CECAP/CCSF

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY OutYear	Totals
FUNDING						
AB434	193,680	51,000	55,000	55,000	0	354,680
Totals:	**193,680**	**51,000**	**55,000**	**55,000**	**0**	**354,680**
ANNUAL FUNDING OVERAGE:	**193,680**	**51,000**	**55,000**	**55,000**	**0**	**354,680**
CUMULATIVE FUNDING OVERAGE:	**193,680**	**244,680**	**299,680**	**354,680**	**354,680**	

Cost Funding Matrix

768 LNG Fueling Station Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Procurement	0	55,000	0	55,000
Totals:	**0**	**55,000**	**0**	**55,000**
FUNDING				
AB434	0	55,000	0	55,000
Totals:	**0**	**55,000**	**0**	**55,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

836 San Francisco Japantown Community Plan   Sponsor: CCSF

Cost/Funding Item	FY 2000/01	Totals
COST		
Planning	15,000	15,000
Totals:	**15,000**	**15,000**
FUNDING		
TLC Planning	15,000	15,000
Totals:	**15,000**	**15,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

769 SFO Electric Charging Stations   Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Procurement	0	21,000	0	21,000
Totals:	**0**	**21,000**	**0**	**21,000**
FUNDING				
AB434	0	21,000	0	21,000
Totals:	**0**	**21,000**	**0**	**21,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

835 Tavlor Street Cable Car Corridor Plan   Sponsor: CCSF

Cost/Funding Item	FY 1999/00	Totals
COST		
Planning	45,000	45,000
Totals:	**45,000**	**45,000**
FUNDING		
TLC Planning	45,000	45,000
Totals:	**45,000**	**45,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

776 Three Electric Vehicles for Golden Gate Park   Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2001/02	FY OutYear	Totals
COST				
Procurement	0	10,000	0	10,000
Totals:	**0**	**10,000**	**0**	**10,000**
FUNDING				
AB434	0	10,000	0	10,000
Totals:	**0**	**10,000**	**0**	**10,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

764 Treasure Island Bicycle Path Sponsor: CCSF

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Construction	0	120,000	0	120,000
Totals:	0	120,000	0	120,000
FUNDING				
AB434	0	120,000	0	120,000
Totals:	0	120,000	0	120,000
ANNUAL FUNDING OVERAGE:	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	

Cost Funding Matrix

48.1 Downtown Ped. Proj. - Planning   Sponsor: DCP

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	801,546	51,200	0	0	0	0	0	852,746
Construction	26,500	0	0	0	0	0	0	26,500
Totals:	**828,046**	**51,200**	**0**	**0**	**0**	**0**	**0**	**879,246**
FUNDING								
Proposition B	836,410	50,000	40,000	0	0	0	0	926,410
Totals:	836,410	50,000	40,000	0	0	0	0	926,410
ANNUAL FUNDING OVERAGE:	8,364	-1,200	40,000	0	0	0	0	47,164
CUMULATIVE FUNDING OVERAGE:	8,364	7,164	47,164	47,164	47,164	47,164	47,164	

Cost Funding Matrix

815 Land Use Support for Transit Corridors Sponsor: DCP

Cost/Funding Item	FY Previous	FY 1998/99	FY OutYear	Totals
COST				
Planning	0	177,000	0	177,000
Totals:	**0**	**177,000**	**0**	**177,000**
FUNDING				
TCSP	0	177,000	0	177,000
Totals:	**0**	**177,000**	**0**	**177,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

43.1 T.P.S. - Planning Staff   Sponsor: DCP

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	806,923	40,000	0	0	0	0	0	846,923
Totals:	**806,923**	**40,000**	**0**	**0**	**0**	**0**	**0**	**846,923**
FUNDING								
Proposition B	964,760	40,000	40,000	40,000	40,000	50,000	0	1,174,760
Totals:	**964,760**	**40,000**	**40,000**	**40,000**	**40,000**	**50,000**	**0**	**1,174,760**
ANNUAL FUNDING OVERAGE:	**157,837**	**0**	**40,000**	**40,000**	**40,000**	**50,000**	**0**	**327,837**
CUMULATIVE FUNDING OVERAGE:	**157,837**	**157,837**	**197,837**	**237,837**	**277,837**	**327,837**	**327,837**	

Cost Funding Matrix

45.2 TBP- Cecan Sponsor: DCP

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
FUNDING								
Proposition B	0	265,000	267,000	298,307	316,266	336,197	0	1,482,769
Totals:	**0**	**265,000**	**267,000**	**298,307**	**316,266**	**336,197**	**0**	**1,482,769**
ANNUAL FUNDING OVERAGE:	**0**	**265,000**	**267,000**	**298,307**	**316,266**	**336,197**	**0**	**1,482,769**
CUMULATIVE FUNDING OVERAGE:	**0**	**265,000**	**532,000**	**830,307**	**1,146,573**	**1,482,770**	**1,482,770**	

Cost Funding Matrix

45.1 Transportation Brokerage Program   Sponsor: DCP

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	887,015	102,000	103,000	104,000	105,000	0	0	1,301,015
Environmental	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0
ROW Acquisition	0	0	0	0	0	0	0	0
Procurement	0	0	0	0	0	0	0	0
Construction	450,193	0	0	0	0	0	0	450,193
Contingency	0	0	0	0	0	0	0	0
Incremental O&M Costs	0	0	0	0	0	0	0	0
Totals:	1,337,208	102,000	103,000	104,000	105,000	0	0	1,751,208
FUNDING								
AB434	23,295	0	0	0	0	0	0	23,295
Proposition B	2,180,400	93,000	43,000	115,826	122,680	129,842	0	2,684,748
Totals:	2,203,695	93,000	43,000	115,826	122,680	129,842	0	2,708,043
ANNUAL FUNDING OVERAGE:	866,487	-9,000	-60,000	11,826	17,680	129,842	0	956,834
CUMULATIVE FUNDING OVERAGE:	866,487	857,487	797,487	809,313	826,993	956,835	956,835	

Cost Funding Matrix

46 Transportation Management Assoc. Program Sponsor: DCP

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	953,047	102,000	103,000	104,000	105,000	0	0	1,367,047
Construction	690,182	102,954	105,015	107,066	108,000	0	0	1,113,217
Totals:	1,643,229	**204,954**	208,015	**211,066**	**213,000**	**0**	**0**	**2,480,264**
FUNDING								
STA	45,000	0	0	0	0	0	0	45,000
Proposition B	1,690,096	239,000	25,000	361,674	383,707	407,087	431,886	3,538,450
Totals:	**1,735,096**	**239,000**	**25,000**	**361,674**	**383,707**	**407,087**	**431,886**	**3,583,450**
ANNUAL FUNDING OVERAGE:	**91,867**	**34,046**	**-183,015**	**150,608**	**170,707**	**407,087**	**431,886**	**1,103,186**
CUMULATIVE FUNDING OVERAGE:	**91,867**	**125,913**	**-57,102**	**93,506**	**264,213**	**671,300**	**1,103,186**	

Cost Funding Matrix

823 Addison and Digby Traffic Circle Sponsor: DPT

Cost/Funding Item	FY 2002/03	FY 2003/04	Totals
COST			
Design	50,000	0	50,000
Construction	0	150,000	150,000
Totals:	50,000	**150,000**	**200,000**
FUNDING			
Regional Improvement Funds (RIF)	50,000	150,000	200,000
Totals:	**50,000**	**150,000**	**200,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

803 Alemany Blvd. San Jose Ave. Improvements Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1997/98	FY 1999/00	FY 2000/01	FY OutYear	Totals
COST						
Construction	0	0	131,000	0	0	131,000
Totals:	**0**	**0**	**131,000**	**0**	**0**	**131,000**
FUNDING						
Surface Transportation Program (STP) Dis	0	115,974	0	0	0	115,974
Congestion Management/Air Quality (CMA	0	0	0	0	0	0
CMAQ Match (STIP)	0	0	0	15,026	0	15,026
Totals:	**0**	**115,974**	**0**	**15,026**	**0**	**131,000**
ANNUAL FUNDING OVERAGE:	**0**	**115,974**	**-131,000**	**15,026**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**115,974**	**-15,026**	**0**	**0**	

Cost Funding Matrix

824 Audible Pedestrian Signals and ADA Pushbuttons Sponsor: DPT

Cost/Funding Item	FY 2001/02	FY 2002/03	Totals
COST			
Environmental	7,000	0	7,000
Design	0	20,000	20,000
Construction	0	353,000	353,000
Totals:	**7,000**	**373,000**	**380,000**
FUNDING			
Regional Improvement Funds (RIF)	0	335,000	335,000
Other Local	7,000	38,000	45,000
Totals:	**7,000**	**373,000**	**380,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

47.3 Bicycle. Ped.. Elderly. & Disabled Access. - "Spot Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Construction	440,000	10,000	10,000	10,000	10,000	10,000	10,000	500,000
Totals:	**440,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**500,000**
FUNDING								
Proposition B	420,000	10,000	10,000	10,000	10,000	10,000	10,000	480,000
Totals:	**420,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**480,000**
ANNUAL FUNDING OVERAGE:	**-20,000**	**0**	**0**	**0**	**0**	**0**	**0**	**-20,000**
CUMULATIVE FUNDING OVERAGE:	**-20,000**	**-20,000**	**-20,000**	**-20,000**	**-20,000**	**-20,000**	**-20,000**	

Cost Funding Matrix

47.4 Bicycle. Ped.. Elderly. & Disabled Access. - Bicyc Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	150,000	0	0	0	0	0	0	150,000
Construction	4,719,000	525,000	397,000	460,500	325,000	300,000	300,000	7,026,500
Totals:	4,869,000	**525,000**	**397,000**	**460,500**	**325,000**	**300,000**	**300,000**	**7,176,500**
FUNDING								
Surface Transportation (STP) Regional	1,208,000	0	0	0	0	0	0	1,208,000
Transportation Enhancement (TEA)	395,000	0	0	0	0	0	0	395,000
Hazard Elimination Safety (HES)	360,000	0	0	0	0	0	0	360,000
Flexible Congestion Relief (FCR)	140,000	0	0	0	0	0	0	140,000
Traffic System Management (TSM)	53,000	0	0	0	0	0	0	53,000
TDA Capital	1,808,000	200,000	200,000	200,000	200,000	200,000	200,000	3,008,000
AB434	905,000	0	0	0	0	0	0	905,000
Proposition B	908,100	176,000	124,000	125,000	30,000	0	0	1,363,100
Totals:	5,777,100	**376,000**	**324,000**	**325,000**	**230,000**	**200,000**	**200,000**	**7,432,100**
ANNUAL FUNDING OVERAGE:	908,100	**-149,000**	**-73,000**	**-135,500**	**-95,000**	**-100,000**	**-100,000**	**255,600**
CUMULATIVE FUNDING OVERAGE:	908,100	**759,100**	**686,100**	**550,600**	**455,600**	**355,600**	**255,600**	

Cost Funding Matrix

774 Bicycle Racks (700 Bicycle Capacity) Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Procurement	0	97,600	0	97,600
Totals:	**0**	**97,600**	**0**	**97,600**
FUNDING				
AB434-Regional	0	97,600	0	97,600
Totals:	**0**	**97,600**	**0**	**97,600**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

763 Bicycle Routes - Stencils Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1999/00	FY OutYear	Totals
COST				
Construction	0	11,000	0	11,000
Totals:	**0**	**11,000**	**0**	**11,000**
FUNDING				
AB434	0	11,000	0	11,000
Totals:	**0**	**11,000**	**0**	**11,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

755 Bike Lane Striping and Signage   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1998/99	FY OutYear	Totals
COST				
Construction	0	242,500	0	242,500
Totals:	**0**	**242,500**	**0**	**242,500**
FUNDING				
TDA Capital	0	64,000	0	64,000
AB434	0	48,000	0	48,000
Proposition B	0	0	0	0
Prop. B Match	0	130,500	0	130,500
Totals:	**0**	**242,500**	**0**	**242,500**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

777 Caltrain Bicycle Station Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY OutYear	Totals
COST					
Construction	0	354,000	18,000	0	372,000
Totals:	**0**	**354,000**	**18,000**	**0**	**372,000**
FUNDING					
Transportation Enhancement (TEA)	0	354,000	0	0	354,000
AB434	0	0	18,000	0	18,000
Totals:	**0**	**354,000**	**18,000**	**0**	**372,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	

Cost Funding Matrix

804 GGP Panhandle Path & Kezar Path Improvements Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1998/99	FY 1999/00	FY 2000/01	FY OutYear	Totals
COST						
Environmental	0	0	40,700	0	0	40,700
Design	0	0	0	81,599	0	81,599
Construction	0	0	0	677,701	0	677,701
Totals:	**0**	**0**	**40,700**	**759,300**	**0**	**800,000**
FUNDING						
Congestion Management/Air Quality (CMA	0	708,000	0	0	0	708,000
CMAQ Match (STIP)	0	0	0	92,000	0	92,000
Totals:	0	**708,000**	**0**	**92,000**	**0**	**800,000**
ANNUAL FUNDING OVERAGE:	0	**708,000**	**-40,700**	**-667,300**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	0	**708,000**	**667,300**	**0**	**0**	

Cost Funding Matrix

782 Howard Street Bicycle Lane   Sponsor: DPT

Cost/Funding Item	FY 2001/02	Totals
COST		
Construction	54,000	54,000
Totals:	**54,000**	**54,000**
FUNDING		
AB434	54,000	54,000
Totals:	**54,000**	**54,000**
ANNUAL FUNDING OVERAGE:	0	0
CUMULATIVE FUNDING OVERAGE:	0	

Cost Funding Matrix

822 Ladder Crosswalk and F.Y.G. Sign Expansion Sponsor: DPT

Cost/Funding Item	FY 2002/03	Totals
COST		
Construction	1,300,000	1,300,000
Totals:	**1,300,000**	**1,300,000**
FUNDING		
Regional Improvement Funds (RIF)	1,300,000	1,300,000
Totals:	**1,300,000**	**1,300,000**
ANNUAL FUNDING OVERAGE:	0	0
CUMULATIVE FUNDING OVERAGE:	0	

Cost Funding Matrix

828 Laguna Honda Bike Lanes and O'Shaughnessy Path   Sponsor: DPT

Cost/Funding Item	FY 2002/03	FY 2005/06	Totals
COST			
Design	160,000	0	160,000
Construction	0	1,426,000	1,426,000
Totals:	160,000	1,426,000	1,586,000
FUNDING			
Regional Improvement Funds (RIF)	160,000	0	160,000
AB434-Regional	0	1,426,000	1,426,000
Totals:	160,000	1,426,000	1,586,000
ANNUAL FUNDING OVERAGE:	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	

Cost Funding Matrix

837 Mission Creek Bikeway   Sponsor: DPT

Cost/Funding Item	FY 2000/01	Totals
COST		
Planning	20,000	20,000
Totals:	**20,000**	**20,000**
FUNDING		
TLC Planning	20,000	20,000
Totals:	**20,000**	**20,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

821 Oak and Fell Streets ITMS Deployment   Sponsor: DPT

Cost/Funding Item	FY 2005/06	FY 2006/07	Totals
COST			
Design	136,200	0	136,200
Construction	0	1,135,000	1,135,000
Totals:	**136,200**	**1,135,000**	**1,271,200**
FUNDING			
Regional Improvement Funds (RIF)	136,200	1,135,000	1,271,200
Totals:	**136,200**	**1,135,000**	**1,271,200**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

765 Page Street Traffic Calming   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Construction	0	150,000	0	150,000
Totals:	**0**	**150,000**	**0**	**150,000**
FUNDING				
AB434	0	150,000	0	150,000
Totals:	**0**	**150,000**	**0**	**150,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

778 Parking Control Officer (PCO) Bicycle Unit Expansi   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2001/02	FY OutYear	Totals
COST				
Procurement	0	81,000	0	81,000
Totals:	**0**	**81,000**	**0**	**81,000**
FUNDING				
AB434	0	81,000	0	81,000
Totals:	**0**	**81,000**	**0**	**81,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

833 Phelan Avenue Crosswalk and Traffic Calming Improv   Sponsor: DPT

Cost/Funding Item	FY 2001/02	FY 2002/03	Totals
COST			
Design	20,000	0	20,000
Construction	0	200,000	200,000
Totals:	**20,000**	**200,000**	**220,000**
FUNDING			
Regional Improvement Funds (RIF)	0	200,000	200,000
Other Local	20,000	0	20,000
Totals:	**20,000**	**200,000**	**220,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

27 Raised Reflective Lane Markers Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Construction	570,000	100,000	100,000	100,000	100,000	100,000	0	1,070,000
Totals:	**570,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**0**	**1,070,000**
FUNDING								
Hazard Elimination Safety (HES)	270,000	0	0	0	0	0	0	270,000
Proposition B	100,000	100,000	100,000	109,270	112,550	115,930	119,410	757,160
Totals:	**370,000**	**100,000**	**100,000**	**109,270**	**112,550**	**115,930**	**119,410**	**1,027,160**
ANNUAL FUNDING OVERAGE:	**-200,000**	**0**	**0**	**9,270**	**12,550**	**15,930**	**119,410**	**-42,840**
CUMULATIVE FUNDING OVERAGE:	**-200,000**	**-200,000**	**-200,000**	**-190,730**	**-178,180**	**-162,250**	**-42,840**	

Cost Funding Matrix

825 Retrofit Median Refuge for Accesibility   Sponsor: DPT

Cost/Funding Item	FY 2002/03	FY 2003/04	Totals
COST			
Environmental	2,000	0	2,000
Design	6,000	0	6,000
Construction	0	49,000	49,000
Totals:	**8,000**	**49,000**	**57,000**
FUNDING			
Regional Improvement Funds (RIF)	6,000	44,000	50,000
Other Local	2,000	5,000	7,000
Totals:	**8,000**	**49,000**	**57,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

805 Share the Road Bicycle Safety Campaign Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY OutYear	Totals
COST					
Planning	0	0	296,389	0	296,389
Design	0	260,589	18,190	0	278,779
Construction	0	75,000	0	0	75,000
Totals:	**0**	**335,589**	**314,579**	**0**	**650,168**
FUNDING					
Transportation Enhancement (TEA)	0	296,389	296,389	0	592,778
Other State	0	39,200	0	0	39,200
Prop. B Match	0	0	18,190	0	18,190
Totals:	**0**	**335,589**	**314,579**	**0**	**650,168**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	

Cost Funding Matrix

25 Signal Upgrading   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	50,000	0	0	0	0	0	0	50,000
Design	3,407,955	450,000	450,000	450,000	450,000	450,000	450,000	6,107,955
Construction	36,293,045	4,680,000	4,705,000	4,733,000	4,762,000	4,793,000	4,825,000	64,791,045
Totals:	**39,751,000**	**5,130,000**	**5,155,000**	**5,183,000**	**5,212,000**	**5,243,000**	**5,275,000**	**70,949,000**
FUNDING								
Surface Transportation (STP) Guarantee	710,000	0	0	0	0	0	0	710,000
Surface Transportation (STP) Regional	744,000	0	0	0	0	0	0	744,000
Congestion Management/Air Quality (CMA	1,673,000	0	0	0	0	0	0	1,673,000
Prop 116	285,000	0	0	0	0	0	0	285,000
State and Local Transportation Partnership	132,000	0	0	0	0	0	0	132,000
TDA Capital	40,000	0	0	0	0	0	0	40,000
Proposition B	36,907,000	5,130,000	6,768,000	5,663,464	5,866,106	6,078,210	3,565,958	69,978,738
Totals:	**40,491,000**	**5,130,000**	**6,768,000**	**5,663,464**	**5,866,106**	**6,078,210**	**3,565,958**	**73,562,738**
ANNUAL FUNDING OVERAGE:	**740,000**	**0**	**1,613,000**	**480,464**	**654,106**	**835,210**	**-1,709,042**	**2,613,738**
CUMULATIVE FUNDING OVERAGE:	**740,000**	**740,000**	**2,353,000**	**2,833,464**	**3,487,570**	**4,322,780**	**2,613,738**	

Cost Funding Matrix

43.15 TPS - Downtown Bus Lane Restriping Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1998/99	FY 2001/02	FY OutYear	Totals
FUNDING					
Proposition B	0	25,000	50,000	0	75,000
Totals:	**0**	**25,000**	**50,000**	**0**	**75,000**
ANNUAL FUNDING OVERAGE:	**0**	**25,000**	**50,000**	**0**	**75,000**
CUMULATIVE FUNDING OVERAGE:	**0**	**25,000**	**75,000**	**75,000**	

Cost Funding Matrix

43.2 T.P.S. - DPT Staffing Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
FUNDING								
Proposition B	276,150	65,000	68,000	70,000	72,000	74,000	0	625,150
Totals:	**276,150**	**65,000**	**68,000**	**70,000**	**72,000**	**74,000**	**0**	**625,150**
ANNUAL FUNDING OVERAGE:	**276,150**	**65,000**	**68,000**	**70,000**	**72,000**	**74,000**	**0**	**625,150**
CUMULATIVE FUNDING OVERAGE:	**276,150**	**341,150**	**409,150**	**479,150**	**551,150**	**625,150**	**625,150**	

Cost Funding Matrix

43.14 T.P.S. - Stockton St. Improv. (FY 00/01) Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
FUNDING				
Proposition B	0	63,000	0	63,000
Totals:	**0**	**63,000**	**0**	**63,000**
ANNUAL FUNDING OVERAGE:	**0**	**63,000**	**0**	**63,000**
CUMULATIVE FUNDING OVERAGE:	**0**	**63,000**	**63,000**	

Cost Funding Matrix

29 Traffic Control Svstems   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	102,500	0	0	0	0	0	0	102,500
Design	415,000	0	0	0	0	0	0	415,000
Construction	1,927,000	50,000	50,000	50,000	50,000	50,000	50,000	2,227,000
Totals:	**2,444,500**	**50,000**	**50,000**	**50,000**	**50,000**	**50,000**	**50,000**	**2,744,500**
FUNDING								
Surface Transportation (STP) Guarantee	1,150,000	0	0	0	0	0	0	1,150,000
Surface Transportation (STP) Regional	858,500	0	0	0	0	0	0	858,500
Hazard Elimination Safety (HES)	387,000	0	0	0	0	0	0	387,000
Regional Improvement Program (RIP)	2,500,000	0	0	0	0	0	0	2,500,000
Traffic System Management (TSM)	20,180	0	0	0	0	0	0	20,180
Proposition B	714,000	50,000	50,000	54,635	56,275	57,965	59,705	1,042,580
Totals:	**5,629,680**	**50,000**	**50,000**	**54,635**	**56,275**	**57,965**	**59,705**	**5,958,260**
ANNUAL FUNDING OVERAGE:	**3,185,180**	**0**	**0**	**4,635**	**6,275**	**7,965**	**9,705**	**3,213,760**
CUMULATIVE FUNDING OVERAGE:	3,185,180	**3,185,180**	**3,185,180**	**3,189,815**	**3,196,090**	**3,204,055**	**3,213,760**	

Cost Funding Matrix

30 Traffic Engineering Equip. Sponsor: DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Procurement	807,000	145,000	100,000	100,000	100,000	100,000	100,000	1,452,000
Totals:	807,000	**145,000**	100,000	**100,000**	100,000	**100,000**	**100,000**	**1,452,000**
FUNDING								
Proposition B	987,000	175,000	272,000	103,807	95,668	214,471	23,233	1,871,177
Totals:	**987,000**	**175,000**	**272,000**	**103,806**	**95,668**	**214,470**	**23,233**	**1,871,177**
ANNUAL FUNDING OVERAGE:	**180,000**	**30,000**	**172,000**	**3,806**	**-4,332**	**114,470**	**-76,767**	**419,178**
CUMULATIVE FUNDING OVERAGE:	**180,000**	**210,000**	**382,000**	**385,806**	**381,474**	**495,944**	**419,177**	

Cost Funding Matrix

802 Upper Market Signal Timing   Sponsor: DPT

Cost/Funding Item	FY Previous	FY 1997/98	FY 1999/00	FY 2000/01	FY OutYear	Totals
COST						
Construction	0	0	181,000	0	0	181,000
Totals:	**0**	**0**	**181,000**	**0**	**0**	**181,000**
FUNDING						
Surface Transportation Program (STP) Dis	0	160,240	0	0	0	160,240
CMAQ Match (STIP)	0	0	0	20,760	0	20,760
Totals:	**0**	**160,240**	**0**	**20,760**	**0**	**181,000**
ANNUAL FUNDING OVERAGE:	**0**	**160,240**	**-181,000**	**20,760**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**160,240**	**-20,760**	**0**	**0**	

Cost Funding Matrix

36 Bernal Heights St. System Upgrading   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	205,000	0	0	0	0	0	0	205,000
Design	400,000	0	0	0	0	0	0	400,000
ROW Acquisition	135,000	0	0	0	0	0	0	135,000
Construction	6,640,000	200,000	500,000	1,540,000	0	0	0	8,880,000
Totals:	**7,380,000**	**200,000**	**500,000**	**1,540,000**	**0**	**0**	**0**	**9,620,000**
FUNDING								
TDA Capital	25,000	0	0	0	0	0	0	25,000
Proposition B	5,285,000	206,000	530,450	1,682,758	0	0	0	7,704,208
Totals:	5,310,000	**206,000**	**530,450**	**1,682,758**	**0**	**0**	**0**	**7,729,208**
ANNUAL FUNDING OVERAGE:	**-2,070,000**	**6,000**	**30,450**	**142,758**	**0**	**0**	**0**	**-1,890,792**
CUMULATIVE FUNDING OVERAGE:	**-2,070,000**	**-2,064,000**	**-2,033,550**	**-1,890,792**	**-1,890,792**	**-1,890,792**	**-1,890,792**	

Cost Funding Matrix

816 Broadway Corridor Gateway   Sponsor: DPW

Cost/Funding Item	FY 1998/99	FY 1999/00	Totals
COST			
Planning	45,000	0	45,000
Construction	0	1,000,000	1,000,000
Totals:	**45,000**	**1,000,000**	**1,045,000**
FUNDING			
TLC Capital	0	1,000,000	1,000,000
Other Local	10,000	0	10,000
TLC Planning	35,000	0	35,000
Totals:	45,000	**1,000,000**	1,045,000
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Cost Funding Matrix

781 Cesar Chavez CNG Fueling Facility Expansion   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 1999/00	FY 2001/02	FY OutYear	Totals
COST					
Construction	0	0	100,000	0	100,000
Totals:	**0**	**0**	**100,000**	**0**	**100,000**
FUNDING					
AB434	0	0	100,000	0	100,000
Totals:	**0**	**0**	**100,000**	**0**	**100,000**
ANNUAL FUNDING OVERAGE:	0	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	0	

Cost Funding Matrix

48.2 Downtown Ped. Proj. - Fourth St. Widening Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Construction	2,088,600	375,000	40,000	0	0	0	0	2,503,600
Totals:	**2,088,600**	**375,000**	**40,000**	**0**	**0**	**0**	**0**	**2,503,600**
FUNDING								
Surface Transportation Program (STP) Gu	35,000	0	0	0	0	0	0	35,000
Surface Transportation Program (STP) Dis	267,000	0	0	0	0	0	0	267,000
Transportation Enhancement (TEA)	425,600	0	0	0	0	0	0	425,600
Proposition B	1,185,000	0	440,000	43,708	0	0	0	1,668,708
Totals:	1,912,600	**0**	**440,000**	**43,708**	**0**	**0**	**0**	**2,396,308**
ANNUAL FUNDING OVERAGE:	**-176,000**	**-375,000**	**400,000**	**43,708**	**0**	**0**	**0**	**-107,292**
CUMULATIVE FUNDING OVERAGE:	**-176,000**	**-551,000**	**-151,000**	**-107,292**	**-107,292**	**-107,292**	**-107,292**	

Cost Funding Matrix

33.4 Embarcadero Roadway O&M Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Incremental O&M Costs	2,162,880	580,000	610,000	630,000	660,000	680,000	3,068,000	8,390,880
Totals:	**2,162,880**	**580,000**	**610,000**	**630,000**	**660,000**	**680,000**	**3,068,000**	**8,390,880**
FUNDING								
Proposition B	2,162,880	587,000	647,000	688,401	742,830	788,324	4,427,977	10,044,412
Totals:	**2,162,880**	**587,000**	**647,000**	**688,401**	**742,830**	**788,324**	**4,427,977**	**10,044,412**
ANNUAL FUNDING OVERAGE:	**0**	**7,000**	**37,000**	**58,401**	**82,830**	**108,324**	**1,359,977**	**1,653,532**
CUMULATIVE FUNDING OVERAGE:	**0**	**7,000**	**44,000**	**102,401**	**185,231**	**293,555**	**1,653,532**	

Cost Funding Matrix

21.1 Fourth Street Bridge Seismic Rehab   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 1998/99	FY 2000/01	FY OutYear	Totals
COST					
Design	0	1,662,000	953,000	0	2,615,000
Totals:	**0**	**1,662,000**	**953,000**	**0**	**2,615,000**
FUNDING					
Bridge Replacement and Rehabilitation (H	0	1,400,000	0	0	1,400,000
Regional Improvement Funds (RIF)	0	0	953,000	0	953,000
Prop. B Match	0	262,000	0	0	262,000
Prop. B Sales Tax - Incremental O&M	0	0	0	0	0
Totals:	**0**	**1,662,000**	**953,000**	**0**	**2,615,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	

Cost Funding Matrix

841 Hunters Point Shipyard Bridge Sponsor: DPW

Cost/Funding Item	FY 2001/02	Totals
COST		
Environmental	11,719,000	11,719,000
Totals:	**11,719,000**	**11,719,000**
FUNDING		
Other Federal	9,375,000	9,375,000
Other Local	2,344,000	2,344,000
Totals:	**11,719,000**	**11,719,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

813 Illinois Street Upgrade   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Design	0	200,000	0	200,000
Totals:	**0**	**200,000**	**0**	**200,000**
FUNDING				
Regional Improvement Funds (RIF)	0	200,000	0	200,000
Totals:	**0**	**200,000**	**0**	**200,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

865 Neighborhood Traffic Calming and Beautification   Sponsor: DPW/DPT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY OutYear	Totals
COST					
Design	0	80,000	10,370	0	90,370
Construction	0	464,000	60,120	0	524,120
Totals:	**0**	**544,000**	**70,490**	**0**	**614,490**
FUNDING					
Transportation Enhancement (TEA)	0	544,000	0	0	544,000
Other Local	0	0	70,490	0	70,490
Totals:	**0**	**544,000**	**70,490**	**0**	**614,490**
ANNUAL FUNDING OVERAGE:	0	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	0	

Cost Funding Matrix

40 Planting & Maint. of Existing Trees Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Construction	11,905,500	1,663,000	1,698,000	1,734,000	1,771,000	1,809,000	7,646,000	28,226,500
Totals:	11,905,500	1,663,000	1,698,000	1,734,000	1,771,000	1,809,000	7,646,000	28,226,500
FUNDING								
State Gas Tax	8,055,500	1,158,000	1,193,000	1,229,000	1,266,000	1,304,000	5,626,000	19,831,500
Proposition B	3,450,000	500,000	540,000	551,814	568,378	585,447	3,202,574	9,398,212
Totals:	11,505,500	1,658,000	1,733,000	1,780,814	1,834,378	1,889,446	8,828,574	29,229,712
ANNUAL FUNDING OVERAGE:	-400,000	-5,000	35,000	46,814	63,378	80,446	1,182,574	1,003,212
CUMULATIVE FUNDING OVERAGE:	-400,000	-405,000	-370,000	-323,186	-259,808	-179,362	1,003,212	

Cost Funding Matrix

21 Seismic Reinforcement Sponsor: DPW

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY OutYear	Totals
COST								
Planning	100,000	50,000	50,000	50,000	50,000	0	0	300,000
Environmental	0	0	450,000	450,000	450,000	0	0	1,350,000
Design	1,250,000	450,000	0	0	0	0	0	1,700,000
Construction	7,550,000	2,200,000	6,500,000	6,500,000	6,500,000	500,000	2,500,000	32,250,000
Totals:	8,900,000	**2,700,000**	7,000,000	**7,000,000**	7,000,000	**500,000**	**2,500,000**	**35,600,000**
FUNDING								
Surface Transportation Program (STP) Gu	0	0	953,000	0	0	0	0	953,000
Bridge Replacement and Rehabilitation (H	5,200,000	0	2,700,000	0	0	0	0	7,900,000
Caltrans Land Sale	0	0	1,668,000	1,301,000	6,031,000	0	0	9,000,000
Proposition B	2,262,000	0	125,000	0	0	0	0	2,387,000
General Fund	1,700,000	0	0	0	0	0	0	1,700,000
Totals:	**9,162,000**	**0**	**5,446,000**	**1,301,000**	**6,031,000**	**0**	**0**	**21,940,000**
ANNUAL FUNDING OVERAGE:	**262,000**	**-2,700,000**	**-1,554,000**	**-5,699,000**	**-969,000**	**-500,000**	**-2,500,000**	**-13,660,000**
CUMULATIVE FUNDING OVERAGE:	262,000	**-2,438,000**	**-3,992,000**	**-9,691,000**	**-10,660,000**	**-11,160,000**	**-13,660,000**	

Cost Funding Matrix

23 Sidewalk Repair - Public   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Construction	8,260,000	600,000	600,000	600,000	600,000	600,000	1,800,000	13,060,000
Contingency	6,921,600	0	0	0	0	0	0	6,921,600
Totals:	**15,181,600**	**600,000**	**600,000**	**600,000**	**600,000**	**600,000**	**1,800,000**	**19,981,600**
FUNDING								
Proposition B	5,860,000	600,000	541,000	349,664	0	0	0	7,350,664
General Fund	2,400,000	0	0	0	0	0	0	2,400,000
Totals:	**8,260,000**	**600,000**	**541,000**	**349,664**	**0**	**0**	**0**	**9,750,664**
ANNUAL FUNDING OVERAGE:	**-6,921,600**	**0**	**-59,000**	**-250,336**	**-600,000**	**-600,000**	**-1,800,000**	**-10,230,936**
CUMULATIVE FUNDING OVERAGE:	-6,921,600	**-6,921,600**	**-6,980,600**	**-7,230,936**	**-7,830,936**	**-8,430,936**	**-10,230,936**	

Cost Funding Matrix

24 Street Repair & Cleaning Equip.   Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Procurement	10,584,270	1,406,000	1,021,000	1,072,000	1,126,000	920,000	4,654,000	20,783,270
Construction	354,150	34,000	116,000	32,000	478,000	152,000	594,000	1,760,150
Totals:	10,938,420	1,440,000	1,137,000	1,104,000	1,604,000	1,072,000	5,248,000	22,543,420
FUNDING								
State Gas Tax	1,594,000	206,000	213,000	220,000	227,000	234,000	750,000	3,444,000
Caltrans Land Sale	573,420	0	0	0	0	0	0	573,420
Proposition B	8,971,000	1,240,000	1,018,000	959,391	1,306,706	1,054,963	1,122,454	15,672,513
Totals:	11,138,420	1,446,000	1,231,000	1,179,391	1,533,706	1,288,963	1,872,454	19,689,933
ANNUAL FUNDING OVERAGE:	**200,000**	**6,000**	**94,000**	**75,391**	**-70,294**	**216,963**	**-3,375,546**	**-2,853,487**
CUMULATIVE FUNDING OVERAGE:	**200,000**	**206,000**	**300,000**	**375,391**	**305,097**	**522,060**	**-2,853,486**	

Cost Funding Matrix

20 Street Resurfacing Sponsor: DPW

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Annual Maintenance Cost	125,412,000	25,686,000	26,971,000	28,320,000	29,736,000	31,223,000	141,312,000	408,660,000
Totals:	**125,412,000**	**25,686,000**	**26,971,000**	**28,320,000**	**29,736,000**	**31,223,000**	**141,312,000**	**408,660,000**
FUNDING								
FHWA Federal Urban Aid	1,800,000	0	0	0	0	0	0	1,800,000
RABA - Revenue Aligned Budget Authority	0	2,342,000	0	0	0	0	0	2,342,000
State and Local Transportation Partnership	7,129,000	0	0	0	0	0	0	7,129,000
Proposition B	93,298,000	15,600,000	17,101,708	10,100,000	11,198,725	9,923,608	8,726,400	165,948,441
General Fund	12,600,000	0	0	0	0	0	0	12,600,000
Totals:	**114,827,000**	**17,942,000**	**17,101,708**	**10,100,000**	**11,198,725**	**9,923,608**	**8,726,400**	**189,819,441**
ANNUAL FUNDING OVERAGE:	**-10,585,000**	**-7,744,000**	**-9,869,292**	**-18,220,000**	**-18,537,275**	**-21,299,392**	**-132,585,600**	**-218,840,559**
CUMULATIVE FUNDING OVERAGE:	**-10,585,000**	**-18,329,000**	**-28,198,292**	**-46,418,292**	**-64,955,567**	**-86,254,959**	**-218,840,559**	

Cost Funding Matrix

832 Third Street/Bayshore Pavement Renovation   Sponsor: DPW

Cost/Funding Item	FY 2002/03	Totals
COST		
Construction	5,077,632	5,077,632
Totals:	5,077,632	**5,077,632**
FUNDING		
Regional Improvement Funds (RIF)	5,077,632	5,077,632
Totals:	**5,077,632**	**5,077,632**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

829 Golden Gate Ferry's SF Terminal Facilities Rehab   Sponsor: GGT

Cost/Funding Item	FY 2005/06	FY 2006/07	Totals
COST			
Design	450,000	0	450,000
Construction	400,000	1,400,000	1,800,000
Totals:	**850,000**	**1,400,000**	**2,250,000**
FUNDING			
Regional Improvement Funds (RIF)	850,000	1,400,000	2,250,000
Totals:	**850,000**	**1,400,000**	**2,250,000**
ANNUAL FUNDING OVERAGE:	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	

Cost Funding Matrix

826 San Francisco Lav Berth Sponsor: GGT

Cost/Funding Item	FY 2001/02	FY 2002/03	FY 2003/04	Totals
COST				
Design	100,000	0	0	100,000
Construction	250,000	0	2,000,000	2,250,000
Totals:	**350,000**	**0**	**2,000,000**	**2,350,000**
FUNDING				
Regional Improvement Funds (RIF)	0	0	1,000,000	1,000,000
Other State	0	0	1,000,000	1,000,000
Other Local	350,000	0	0	350,000
Totals:	**350,000**	**0**	**2,000,000**	**2,350,000**
ANNUAL FUNDING OVERAGE:	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	

Cost Funding Matrix

842 Caltrain Electrification Program   Sponsor: JPB

Cost/Funding Item	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	Totals
COST					
Environmental	3,375,000	6,400,000	9,025,000	0	18,800,000
Design	0	20,000,000	0	10,000,000	30,000,000
Totals:	3,375,000	26,400,000	9,025,000	10,000,000	48,800,000
FUNDING					
FTA Section 5309 - Fixed Guideway	2,700,000	960,000	0	0	3,660,000
Regional Improvement Program (RIP)	0	0	0	10,000,000	10,000,000
ITIP - State	0	0	9,025,000	0	9,025,000
Other Local	675,000	25,440,000	0	0	26,115,000
Totals:	**3,375,000**	**26,400,000**	**9,025,000**	**10,000,000**	**48,800,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	

Cost Funding Matrix

811 Caltrain Track Rehabilitiation   Sponsor: JPB

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Design	0	950,000	0	950,000
Construction	0	2,850,000	0	2,850,000
Totals:	**0**	**3,800,000**	**0**	**3,800,000**
FUNDING				
Regional Improvement Funds (RIF)	0	3,800,000	0	3,800,000
Totals:	**0**	**3,800,000**	**0**	**3,800,000**
ANNUAL FUNDING OVERAGE:	0	**0**	**0**	0
CUMULATIVE FUNDING OVERAGE:	0	0	**0**	

Cost Funding Matrix

843 Rapid Rail Improvements - Track, Station & Signal Sponsor: JPB

Cost/Funding Item	FY 2003/04	Totals
COST		
Construction	9,000,000	9,000,000
Totals:	9,000,000	**9,000,000**
FUNDING		
Regional Improvement Program (RIP)	3,000,000	3,000,000
Other Local	6,000,000	6,000,000
Totals:	**9,000,000**	**9,000,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

18.8 1401 Bryant Street Rehab.   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Planning	110,000	0	330,000	0	0	0	0	440,000
Design	0	0	0	385,000	385,000	0	0	770,000
Construction	0	0	0	0	4,500,000	4,500,000	0	9,000,000
Contingency	0	0	0	0	0	1,000,000	0	1,000,000
Totals:	110,000	0	330,000	385,000	4,885,000	5,500,000	0	11,210,000
FUNDING								
Fixed Guideway	0	0	0	0	8,000,000	0	0	8,000,000
Transit Capital Improvement (TCI)	0	0	0	0	1,000,000	0	0	1,000,000
Proposition B	100,000	210,000	0	361,000	870,000	1,160,000	0	2,701,000
General Fund	10,000	0	0	0	0	0	0	10,000
Totals:	110,000	210,000	0	361,000	9,870,000	1,160,000	0	11,711,000
ANNUAL FUNDING OVERAGE:	0	210,000	-330,000	-24,000	4,985,000	-4,340,000	0	501,000
CUMULATIVE FUNDING OVERAGE:	0	210,000	-120,000	-144,000	4,841,000	501,000	501,000	

Cost Funding Matrix

753 Alternative Fuel Demonstration Program   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY OutYear	Totals
COST								
Planning	0	0	0	0	0	0	0	0
Design	0	105,000	0	0	0	0	0	105,000
Procurement	0	1,939,000	0	0	0	0	0	1,939,000
Contingency	0	364,000	0	0	0	0	0	364,000
Incremental O&M Costs	0	760,000	0	0	0	0	0	760,000
Totals:	**0**	**3,168,000**	**0**	**0**	**0**	**0**	**0**	**3,168,000**
FUNDING								
AB434	0	220,000	365,000	0	0	0	0	585,000
AB434-Regional	0	500,000	506,000	0	0	0	0	1,006,000
Proposition B	0	0	0	0	0	0	0	0
Prop. B Match	0	0	1,577,000	0	0	0	0	1,577,000
Totals:	**0**	**720,000**	**2,448,000**	**0**	**0**	**0**	**0**	**3,168,000**
ANNUAL FUNDING OVERAGE:	**0**	**-2,448,000**	**2,448,000**	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**-2,448,000**	**0**	**0**	**0**	**0**	**0**	

Cost Funding Matrix

18.17 Auto Vehicle Locator - Central Control Replacement   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
Planning	966,102	0	5,650,000	0	0	0	0	6,616,102
Environmental	0	0	0	0	0	0	0	0
Design	0	1,000,000	1,000,000	0	0	0	0	2,000,000
ROW Acquisition	0	0	0	0	0	0	0	0
Procurement	0	0	0	0	0	0	0	0
Construction	0	0	9,000,000	9,000,000	0	0	0	18,000,000
Contingency	0	0	0	2,000,000	0	0	0	2,000,000
Totals:	966,102	**1,000,000**	15,650,000	**11,000,000**	**0**	**0**	**0**	**28,616,102**
Surface Transportation (STP) Regional	0	1,800,000	3,750,000	3,900,000	0	0	0	9,450,000
Regional Improvement Funds (RIF)	2,000,000	0	0	0	0	0	0	2,000,000
Transit Capital Improvement (TCI)	0	0	5,677,966	0	0	0	0	5,677,966
Traffic System Management (TSM)	0	233,898	487,288	506,780	0	0	0	1,227,966
Proposition B	0	783,000	2,525,000	6,174,000	0	0	0	9,482,000
SFMRIC	200,000	0	0	0	0	0	0	200,000
Totals:	**2,200,000**	**2,816,898**	**12,440,254**	**10,580,780**	**0**	**0**	**0**	**28,037,932**
ANNUAL FUNDING OVERAGE:	1,233,898	**1,816,898**	**-3,209,746**	**-419,220**	**0**	**0**	**0**	**-578,170**

Cost Funding Matrix

818 Bayview Opera House Town Center Sponsor: MUNI

Cost/Funding Item	FY 1998/99	FY 2001/02	FY 2003/04	Totals
COST				
Planning	50,000	0	0	50,000
Construction	0	1,874,276	1,622,000	3,496,276
Totals:	50,000	1,874,276	1,622,000	3,546,276
FUNDING				
TLC Capital	0	1,874,276	1,622,000	3,496,276
TLC Planning	50,000	0	0	50,000
Totals:	50,000	1,874,276	1,622,000	3,546,276
ANNUAL FUNDING OVERAGE:	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	

Cost Funding Matrix

766 Bicycle Racks on Buses Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Equipment	0	90,000	0	90,000
Totals:	**0**	**90,000**	**0**	**90,000**
FUNDING				
AB434	0	90,000	0	90,000
Totals:	**0**	**90,000**	**0**	**90,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

16.7 Cable Car Reconstruction (10) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Design	50,000	0	0	0	0	0	0	50,000
ROW Acquisition	700,000	150,000	150,000	150,000	175,000	0	0	1,325,000
Procurement	4,100,000	950,000	1,000,000	1,050,000	1,000,000	0	0	8,100,000
Construction	850,000	170,000	170,000	170,000	152,120	0	0	1,512,120
Totals:	**5,700,000**	**1,270,000**	**1,320,000**	**1,370,000**	**1,327,120**	**0**	**0**	**10,987,120**
FUNDING								
Section 9	4,857,400	724,800	760,800	799,000	838,950	880,900	2,804,448	11,666,298
Surface Transportation (STP) Regional	308,217	88,505	96,929	100,985	100,201	0	0	694,837
Transit Capital Improvement (TCI)	436,550	90,600	100,000	105,000	105,000	110,115	357,680	1,304,945
AB664	606,425	90,600	100,000	105,000	105,000	110,115	357,680	1,474,820
Proposition B	180,000	0	0	0	0	0	0	180,000
SFMRIC	90,375	0	0	0	0	0	0	90,375
Totals:	6,478,967	**994,505**	**1,057,729**	**1,109,985**	**1,149,151**	**1,101,130**	**3,519,808**	**15,411,275**
ANNUAL FUNDING OVERAGE:	778,967	**-275,495**	**-262,271**	**-260,015**	**-177,969**	**1,101,130**	**3,519,808**	**4,424,155**
CUMULATIVE FUNDING OVERAGE:	778,967	**503,472**	**241,201**	**-18,814**	**-196,783**	**904,347**	**4,424,155**	

Cost Funding Matrix

54 Capital Staffing Position (TA#54) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
Cost								
Planning	1,003,522	318,261	381,000	318,261	318,261	318,261	636,522	3,294,088
Environmental	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0
ROW Acquisition	0	0	0	0	0	0	0	0
Totals:	**1,003,522**	**318,261**	**381,000**	**318,261**	**318,261**	**318,261**	**636,522**	**3,294,088**
FUNDING								
Proposition B	695,000	148,000	381,000	350,000	360,000	371,000	1,827,800	4,132,800
Totals:	**695,000**	**148,000**	**381,000**	**350,000**	**360,000**	**371,000**	**1,827,800**	**4,132,800**
ANNUAL FUNDING OVERAGE:	**-308,522**	**-170,261**	**0**	**31,739**	**41,739**	**52,739**	**1,191,278**	**838,712**
CUMULATIVE FUNDING OVERAGE:	-308,522	-478,783	-478,783	-447,044	-405,305	-352,566	838,712	

Cost Funding Matrix

780 CNG Fueling Facility at Islais Creek   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2001/02	FY OutYear	Totals
COST				
Construction	0	500,000	0	500,000
Totals:	**0**	**500,000**	**0**	**500,000**
FUNDING				
AB434	0	500,000	0	500,000
Totals:	**0**	**500,000**	**0**	**500,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

18.13 Data Processing/Office Equip.   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Procurement	3,947,333	211,250	221,250	233,000	245,000	256,125	0	5,113,958
Construction	450,000	0	0	0	0	0	0	450,000
Totals:	**4,397,333**	**211,250**	**221,250**	**233,000**	**245,000**	**256,125**	**0**	**5,563,958**
FUNDING								
Section 9	3,321,501	0	0	0	0	0	0	3,321,501
State and Local Transportation Partnership	574,000	211,250	221,250	233,000	245,000	256,125	0	1,740,625
AB664	556,291	0	0	0	0	0	0	556,291
Proposition B	0	0	0	0	0	0	0	0
SFMRIC	3,307	0	0	0	0	0	0	3,307
Totals:	**4,455,099**	**211,250**	**221,250**	**233,000**	**245,000**	**256,125**	**0**	**5,621,724**
ANNUAL FUNDING OVERAGE:	**57,766**	**0**	**0**	**0**	**0**	**0**	**0**	**57,766**
CUMULATIVE FUNDING OVERAGE:	**57,766**	**57,766**	**57,766**	**57,766**	**57,766**	**57,766**	**57,766**	

Cost Funding Matrix

18.18 Facilities Preservation Projects Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1997/98	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY OutYear	Totals
COST								
Environmental	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0
ROW Acquisition	0	0	0	0	0	0	0	0
Procurement	0	0	0	0	0	0	0	0
Construction	0	15,260,000	6,975,371	6,975,371	6,975,371	6,975,372	0	43,161,485
Totals:	**0**	**15,260,000**	**6,975,371**	**6,975,371**	**6,975,371**	**6,975,372**	**0**	**43,161,485**
FUNDING								
Surface Transportation (STP) Regional	0	0	1,339,515	721,166	715,564	710,006	0	3,486,251
Congestion Management/Air Quality (CMA	0	675,092	0	0	0	0	0	675,092
Regional Improvement Funds (RIF)	0	0	0	0	0	0	0	0
Transit Capital Improvement (TCI)	0	500,000	0	0	0	0	0	500,000
Environmental Enhancement and Mitigatio	0	0	1,350,000	732,500	732,500	732,500	0	3,547,500
STA	0	0	0	0	0	0	0	0
Proposition B	0	9,645,000	6,693,000	0	6,379,000	5,800,000	0	28,517,000
SFMRIC	0	146,200	0	0	0	0	0	146,200
Totals:	**0**	**10,966,292**	**9,382,515**	**1,453,666**	**7,827,064**	**7,242,506**	**0**	**36,872,043**
ANNUAL FUNDING OVERAGE:	**0**	**-4,293,708**	**2,407,144**	**-5,521,705**	**851,693**	**267,134**	**0**	**-6,289,442**
CUMULATIVE FUNDING OVERAGE:	**0**	**-4,293,708**	**-1,886,564**	**-7,408,269**	**-6,556,576**	**-6,289,442**	**-6,289,442**	

Cost Funding Matrix

4.4 F-line O&M   Sponsor: MUNI

Cost/Funding Item	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY 2005/06	Totals
FUNDING								
Proposition B	979,000	1,459,000	1,100,000	1,171,374	1,243,678	1,320,443	900,000	8,173,495
Totals:	**979,000**	**1,459,000**	**1,100,000**	**1,171,374**	**1,243,678**	**1,320,443**	**900,000**	**8,173,495**
ANNUAL FUNDING OVERAGE:	**979,000**	**1,459,000**	**1,100,000**	**1,171,374**	**1,243,678**	**1,320,443**	**900,000**	**8,173,495**
CUMULATIVE FUNDING OVERAGE:	**979,000**	**2,438,000**	**3,538,000**	**4,709,374**	**5,953,052**	**7,273,495**	**8,173,495**	

Cost Funding Matrix

16.8 Historic Rail Car Modifications Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Procurement	0	100,000	100,000	100,000	100,000	100,000	0	500,000
Construction	0	600,000	600,000	600,000	600,000	600,000	0	3,000,000
Contingency	0	50,000	50,000	50,000	50,000	50,000	0	250,000
Totals:	0	750,000	750,000	750,000	750,000	750,000	0	3,750,000
FUNDING								
Section 9	0	537,600	564,480	592,704	622,339	653,456	0	2,970,579
Transit Capital Improvement (TCI)	0	67,200	70,560	74,088	77,792	81,682	0	371,322
Proposition B	474,000	880,000	110,000	451,000	20,000	0	0	1,935,000
Totals:	474,000	1,484,800	745,040	1,117,792	720,131	735,138	0	5,276,901
ANNUAL FUNDING OVERAGE:	474,000	734,800	-4,960	367,792	-29,869	-14,862	0	1,526,901
CUMULATIVE FUNDING OVERAGE:	474,000	1,208,800	1,203,840	1,571,632	1,541,763	1,526,901	1,526,901	

Cost Funding Matrix

18.31 Islais Creek O&M Facilities Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY OutYear	Totals
COST								
ROW Acquisition	5,021,000	0	0	0	0	0	0	5,021,000
Procurement	139,527	0	0	0	0	0	0	139,527
Construction	1,010,274	0	0	0	0	0	0	1,010,274
Contingency	7,000,000	0	0	0	0	0	0	7,000,000
Totals:	13,170,801	0	0	0	0	0	0	13,170,801
FUNDING								
Section 9	4,163,881	0	0	0	0	0	0	4,163,881
Regional Improvement Funds (RIF)	2,579,806	1,378,337	0	0	0	0	0	3,958,143
State and Local Transportation Partnership	700,000	0	0	0	0	0	0	700,000
AB664	271,000	0	0	0	0	0	0	271,000
Proposition B	1,000,000	0	7,210,000	13,410,000	0	0	0	21,620,000
SFMRIC	6,910,283	0	0	0	0	0	0	6,910,283
Transit Impact Development Fee (TIDF)	1,240,000	0	0	0	0	0	0	1,240,000
Off-Street Parking Fund	5,572	0	0	0	0	0	0	5,572
Totals:	16,870,542	1,378,337	7,210,000	13,410,000	0	0	0	38,868,879
ANNUAL FUNDING OVERAGE:	3,699,741	1,378,337	7,210,000	13,410,000	0	0	0	25,698,078
CUMULATIVE FUNDING OVERAGE:	3,699,741	5,078,078	12,288,078	25,698,078	25,698,078	25,698,078	25,698,078	

Cost Funding Matrix

16.2 LRV Purchase (136) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY OutYear	Totals
COST								
Procurement	310,574,390	47,991,380	14,735,600	7,156,800	0	0	0	380,458,170
Totals:	**310,574,390**	**47,991,380**	**14,735,600**	**7,156,800**	**0**	**0**	**0**	**380,458,170**
Funding								
Fixed Guideway	132,001,493	19,165,196	19,165,196	19,165,196	11,346,930	11,484,469	0	212,328,480
New Starts	0	0	0	0	0	0	0	0
Section 5307/Section 9	888,146	0	0	0	0	0	0	888,146
Surface Transportation Program (STP) Dis	3,271,000	0	0	0	0	0	0	3,271,000
Congestion Management/Air Quality (CMA	4,514,000	0	0	0	0	0	0	4,514,000
Prop 108	30,868,000	0	0	0	0	0	0	30,868,000
Prop 116	11,570,356	0	0	0	0	0	0	11,570,356
Flexible Congestion Relief (FCR)	87,793,000	0	0	0	0	0	0	87,793,000
State Gas Tax	0	0	0	0	0	0	0	0
Transit Capital Improvement (TCI)	14,961,112	0	0	0	0	0	0	14,961,112
STA	0	0	0	0	0	0	0	0
AB664	2,636,587	0	0	0	0	0	0	2,636,587
Regional Measure One	3,792,854	0	0	0	0	0	0	3,792,854
Proposition B	62,690,000	0	0	3,322,000	0	0	0	66,012,000
SFMRIC	37,600	0	0	0	0	0	0	37,600
Transit Impact Development Fee (TIDF)	13,434,076	0	0	0	0	0	0	13,434,076
Off-Street Parking Fund	8,000,000	0	0	0	0	0	0	8,000,000
General Fund	0	0	0	0	0	0	0	0
Totals:	**376,458,224**	**19,165,196**	**19,165,196**	**22,487,196**	**11,346,930**	**11,484,469**	**0**	**460,107,211**
ANNUAL FUNDING OVERAGE:	**65,883,834**	**-28,826,184**	**4,429,596**	**15,330,396**	**11,346,930**	**11,484,469**	**0**	**79,649,041**
CUMULATIVE FUNDING OVERAGE:	**65,883,834**	**37,057,650**	**41,487,246**	**56,817,642**	**68,164,572**	**79,649,041**	**79,649,041**	

Cost Funding Matrix

1.2 MMT & MMX O&M Sponsor: MUNI

Cost/Funding Item	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	Totals
FUNDING						
Proposition B	5,717,000	5,642,000	5,690,000	4,000,000	3,070,000	24,119,000
Totals:	**5,717,000**	**5,642,000**	**5,690,000**	**4,000,000**	**3,070,000**	**24,119,000**
ANNUAL FUNDING OVERAGE:	**5,717,000**	**5,642,000**	**5,690,000**	**4,000,000**	**3,070,000**	**24,119,000**
CUMULATIVE FUNDING OVERAGE:	**5,717,000**	**11,359,000**	**17,049,000**	**21,049,000**	**24,119,000**	

Cost Funding Matrix

18.11 Maintenance and Repair Equipment   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
FUNDING								
Section 9	11,846,289	0	0	2,478,000	2,493,750	2,731,995	0	19,550,034
Surface Transportation Program (STP) Dis	637,500	0	0	0	0	0	0	637,500
STA	254,442	0	0	0	0	0	0	254,442
AB664	979,595	0	0	0	0	0	0	979,595
Proposition B	1,500,000	0	0	0	0	0	0	1,500,000
SFMRIC	1,794,907	0	0	0	0	0	0	1,794,907
General Fund	21,891,077	4,597,500	4,825,000	2,513,500	2,603,337	2,693,856	0	39,124,270
Totals:	**38,903,810**	**4,597,500**	**4,825,000**	**4,991,500**	**5,097,087**	**5,425,851**	**0**	**63,840,748**
ANNUAL FUNDING OVERAGE:	**38,903,810**	**4,597,500**	**4,825,000**	**4,991,500**	**5,097,087**	**5,425,851**	**0**	**63,840,748**
CUMULATIVE FUNDING OVERAGE:	**38,903,810**	**43,501,310**	**48,326,310**	**53,317,810**	**58,414,897**	**63,840,748**	**63,840,748**	

Cost Funding Matrix

2.5 Metro East Land Acquisition   Sponsor: MUNI

Cost/Funding Item	FY 2000/01	Totals
FUNDING		
Proposition B	30,000,000	30,000,000
Totals:	**30,000,000**	**30,000,000**
ANNUAL FUNDING OVERAGE:	30,000,000	30,000,000
CUMULATIVE FUNDING OVERAGE:	30,000,000	

Cost Funding Matrix

800 Metro Subway & Station Improvements   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY 2001/02	FY OutYear	Totals
COST					
Construction	0	762,453	0	0	762,453
Totals:	**0**	**762,453**	**0**	**0**	**762,453**
FUNDING					
Surface Transportation Program (STP) Gu	0	675,000	0	0	675,000
CMAQ Match (STIP)	0	87,453	0	0	87,453
Totals:	0	**762,453**	0	**0**	**762,453**
ANNUAL FUNDING OVERAGE:	0	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	0	**0**	**0**	**0**	

Cost Funding Matrix

16.43 Motor Coach (Alternative Fuel) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY OutYear	Totals
FUNDING				
Proposition B	0	1,577,000	0	1,577,000
Totals:	**0**	**1,577,000**	**0**	**1,577,000**
ANNUAL FUNDING OVERAGE:	**0**	**1,577,000**	**0**	**1,577,000**
CUMULATIVE FUNDING OVERAGE:	**0**	**1,577,000**	**1,577,000**	

Cost Funding Matrix

16.4 Motor Coach Purchase (Neoplan) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY OutYear	Totals
COST								
Planning	53,625,000	32,587,500	31,787,500	0	0	0	0	118,000,000
Procurement	0	0	0	0	0	0	0	0
Totals:	**53,625,000**	**32,587,500**	**31,787,500**	**0**	**0**	**0**	**0**	**118,000,000**
FUNDING								
Section 9	41,742,000	10,000,000	15,000,000	8,000,000	13,200,000	0	0	87,942,000
AB664	869,066	2,730,929	1,938,737	0	0	0	0	5,538,732
Proposition B	2,272,000	0	7,792,000	0	4,156,000	0	0	14,220,000
Totals:	44,883,066	**12,730,929**	24,730,737	**8,000,000**	**17,356,000**	**0**	**0**	**107,700,732**
ANNUAL FUNDING OVERAGE:	-8,741,934	**-19,856,571**	-7,056,763	**8,000,000**	**17,356,000**	**0**	**0**	**-10,299,268**
CUMULATIVE FUNDING OVERAGE:	-8,741,934	**-28,598,505**	**-35,655,268**	**-27,655,268**	**-10,299,268**	**-10,299,268**	**-10,299,268**	

Cost Funding Matrix

2.4 Muni Metro Extension - Metro East LRV   Sponsor: MUNI

Cost/Funding Item	FY 2000/01	FY 2001/02	Totals
FUNDING			
Proposition B	30,000,000	5,110,000	35,110,000
Totals:	30,000,000	**5,110,000**	35,110,000
ANNUAL FUNDING OVERAGE:	**30,000,000**	**5,110,000**	**35,110,000**
CUMULATIVE FUNDING OVERAGE:	**30,000,000**	**35,110,000**	

Cost Funding Matrix

18.14 Operating Restrooms Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY OutYear	Totals
Planning	50,000	0	0	0	0	0	0	50,000
Design	150,000	0	0	0	0	0	0	150,000
Construction	1,084,004	1,100,000	0	0	0	0	0	2,184,004
Totals:	**1,284,004**	**1,100,000**	**0**	**0**	**0**	**0**	**0**	**2,384,004**
Proposition B	1,284,000	0	0	0	1,015,000	0	0	2,299,000
Totals:	**1,284,000**	**0**	**0**	**0**	**1,015,000**	**0**	**0**	**2,299,000**
ANNUAL FUNDING OVERAGE:	**-4**	**-1,100,000**	**0**	**0**	**1,015,000**	**0**	**0**	**-85,004**

Cost Funding Matrix

42 Paratransit Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Procurement	74,917,502	13,453,449	14,112,668	14,804,188	15,529,594	16,290,544	35,014,912	184,122,857
Totals:	74,917,502	13,453,449	14,112,668	14,804,188	15,529,594	16,290,544	35,014,912	184,122,857
FUNDING								
STA	5,177,898	659,400	692,370	726,989	763,338	801,505	2,653,081	11,474,581
BART Capital Reserves (Resolution 1876)	4,406,524	755,000	755,000	755,000	755,000	755,000	2,265,000	10,446,524
Proposition B	41,485,000	7,734,000	9,661,000	6,070,000	5,690,000	6,340,000	33,749,000	110,729,000
General Fund	40,166,690	6,055,050	6,350,853	6,661,046	6,986,298	7,327,313	21,549,949	95,097,199
Totals:	91,236,112	15,203,450	17,459,223	14,213,035	14,194,636	15,223,818	60,217,030	227,747,304
ANNUAL FUNDING OVERAGE:	16,318,610	1,750,001	3,346,555	-591,153	-1,334,958	-1,066,726	25,202,118	43,624,447
CUMULATIVE FUNDING OVERAGE:	16,318,610	18,068,611	21,415,166	20,824,013	19,489,055	18,422,329	43,624,447	

Cost Funding Matrix

18.4 Revenue Center Replacement   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY OutYear	Totals
COST								
Planning	572,819	0	0	0	0	0	0	572,819
Design	350,000	0	0	0	0	0	0	350,000
Construction	0	2,025,000	2,025,000	0	0	0	0	4,050,000
Contingency	0	0	450,000	0	0	0	0	450,000
Totals:	922,819	**2,025,000**	2,475,000	**0**	**0**	**0**	**0**	**5,422,819**
Funding								
Section 5307/Section 9	338,315	0	0	0	0	0	0	338,315
Transit Capital Improvement (TCI)	0	2,250,000	0	0	0	0	0	2,250,000
STA	84,504	0	0	0	0	0	0	84,504
Proposition B	0	0	438,000	2,380,000	0	0	0	2,818,000
SFMRIC	75,000	0	0	0	0	0	0	75,000
Totals:	**497,819**	**2,250,000**	**438,000**	**2,380,000**	**0**	**0**	**0**	**5,565,819**
ANNUAL FUNDING OVERAGE:	**-425,000**	**225,000**	**-2,037,000**	**2,380,000**	**0**	**0**	**0**	**143,000**
CUMULATIVE FUNDING OVERAGE:	-425,000	**-200,000**	**-2,237,000**	**143,000**	**143,000**	**143,000**	**143,000**	

Cost Funding Matrix

43.7 T.P.S.- 16th/Mission Bus Bulb (FY 99/00) Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Design	265,828	68,927	72,316	75,706	79,096	82,486	0	644,359
ROW Acquisition	0	0	0	0	0	0	0	0
Procurement	0	0	0	0	0	0	0	0
Construction	1,541,801	399,774	419,435	439,096	458,757	478,418	0	3,737,281
Contingency	797,483	206,780	216,949	227,119	237,288	247,458	0	1,933,077
Incremental O&M Costs	0	0	0	0	0	0	0	0
Totals:	**2,605,112**	**675,481**	**708,700**	**741,921**	**775,141**	**808,362**	**0**	**6,314,717**
FUNDING								
Surface Transportation (STP) Regional	1,116,753	595,897	620,347	644,382	668,006	0	0	3,645,385
Congestion Management/Air Quality (CMA	1,395,000	0	0	0	0	0	0	1,395,000
Traffic System Management (TSM)	1,238,441	610,000	640,000	670,000	700,000	730,000	2,416,391	7,004,832
CMAQ Match (STIP)	72,295	0	0	0	0	0	0	72,295
Proposition B	130,000	0	0	0	0	0	0	130,000
Totals:	**3,952,489**	**1,205,897**	**1,260,347**	**1,314,382**	**1,368,006**	**730,000**	**2,416,391**	**12,247,512**
ANNUAL FUNDING OVERAGE:	1,347,377	530,416	551,647	572,461	592,865	-78,362	2,416,391	5,932,795
CUMULATIVE FUNDING OVERAGE:	1,347,377	1,877,793	2,429,440	3,001,901	3,594,766	3,516,404	5,932,795	

Cost Funding Matrix

43.3 T.P.S. - Muni Staffing Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
FUNDING								
Proposition B	310,000	62,000	62,000	62,000	62,000	62,000	0	620,000
Totals:	310,000	**62,000**	62,000	**62,000**	**62,000**	**62,000**	**0**	**620,000**
ANNUAL FUNDING OVERAGE:	**310,000**	**62,000**	**62,000**	**62,000**	**62,000**	**62,000**	**0**	**620,000**
CUMULATIVE FUNDING OVERAGE:	**310,000**	**372,000**	**434,000**	**496,000**	**558,000**	**620,000**	**620,000**	

Cost Funding Matrix

15.95 Third Street LRT - Central Subway Sponsor: MUNI

Cost/Funding Item	FY 2003/04	FY 2005/06	FY 2006/07	Totals
COST				
Detail Design	0	89,900,000	0	89,900,000
Construction	0	0	455,200,000	455,200,000
Contingency	0	0	147,300,000	147,300,000
Preliminary Engineering	14,400,000	0	0	14,400,000
Project Reserve	0	0	57,100,000	57,100,000
Totals:	14,400,000	89,900,000	659,600,000	763,900,000
FUNDING				
FTA Section 5309 - New Starts & Extension	0	0	531,700,000	531,700,000
Regional Improvement Program (RIP)	0	92,200,000	0	92,200,000
Traffic Congestion Relief Program (TCRP)	0	0	140,000,000	140,000,000
Totals:	0	92,200,000	671,700,000	763,900,000
ANNUAL FUNDING OVERAGE:	-14,400,000	2,300,000	12,100,000	0
CUMULATIVE FUNDING OVERAGE:	-14,400,000	-12,100,000	0	

Assumptions regarding Federal New Starts funding are subject to confirmation through the Regional Transit Expansion Agreement.

Cost Funding Matrix

15.9 Third Street LRT - IOS Sponsor: MUNI

Cost/Funding Item	FY 1996/97	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY 2005/06	Totals
COST										
Planning	0	0	0	0	0	0	0	0	0	0
Detail Design	0	0	35,800,000	0	0	0	0	0	0	35,800,000
Right of Way	0	0	26,600,000	0	0	0	0	0	0	26,600,000
Environmental	14,000,000	0	0	0	0	0	0	0	0	14,000,000
Construction	0	0	0	0	444,300,000	0	0	0	0	444,300,000
Totals:	14,000,000	0	62,400,000	0	444,300,000	0	0	0	0	520,700,000
FUNDING										
FTA Section 5309 - New Starts & Extension	0	0	0	0	0	1,090,000	22,450,000	21,630,000	940,000	46,110,000
Traffic Congestion Relief Program (TCRP)	0	0	0	0	0	0	126,000,000	0	0	126,000,000
STIP	0	0	0	25,000,000	4,000,000	12,500,000	7,500,000	15,070,000	0	64,070,000
Surface Transportation (STP) Regional	0	0	0	0	0	2,500,000	0	2,500,000	0	5,000,000
Proposition B	14,000,000	0	35,800,000	0	26,600,000	177,400,000	0	0	0	253,800,000
Other Local	0	0	0	0	0	0	0	25,700,000	0	25,700,000
Totals:	14,000,000	0	35,800,000	25,000,000	30,600,000	193,490,000	155,950,000	64,900,000	940,000	520,680,000
ANNUAL FUNDING OVERAGE:	0	0	-26,600,000	25,000,000	-413,700,000	193,490,000	155,950,000	64,900,000	940,000	-20,000
CUMULATIVE FUNDING OVERAGE:	0	0	-26,600,000	-1,600,000	-415,300,000	-221,810,000	-65,860,000	-960,000	-20,000	

Cost Funding Matrix

16.63 Trolley Coach Purchase - O&M   Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY OutYear	Totals
COST								
Incremental O&M Costs	1,285,000	930,000	930,000	930,000	930,000	930,000	1,860,000	7,795,000
Totals:	**1,285,000**	**930,000**	**930,000**	**930,000**	**930,000**	**930,000**	**1,860,000**	**7,795,000**
FUNDING								
Prop. B Sales Tax - Incremental O&M	1,305,000	930,000	930,000	930,000	930,000	890,000	1,860,000	7,775,000
Totals:	**1,305,000**	**930,000**	**930,000**	**930,000**	**930,000**	**890,000**	**1,860,000**	**7,775,000**
ANNUAL FUNDING OVERAGE:	20,000	0	0	0	0	-40,000	0	-20,000
CUMULATIVE FUNDING OVERAGE:	20,000	20,000	20,000	20,000	20,000	-20,000	-20,000	

Cost Funding Matrix

838 Visitacion Valley/MUNI Third Street Light Rail and   Sponsor: MUNI

Cost/Funding Item	FY 2000/01	Totals
COST		
Planning	45,000	45,000
Totals:	**45,000**	**45,000**
FUNDING		
TLC Planning	45,000	45,000
Totals:	**45,000**	**45,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

18.32 Woods O&M Facilities Sponsor: MUNI

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY OutYear	Totals
COST								
Design	0	1,500,000	0	0	0	0	0	1,500,000
Construction	0	0	7,500,000	7,500,000	0	0	0	15,000,000
Totals:	0	1,500,000	7,500,000	7,500,000	0	0	0	16,500,000
FUNDING								
Section 9	11,138,000	0	0	0	0	0	0	11,138,000
Surface Transportation (STP) Guarantee	6,289,000	425,000	0	0	0	0	0	6,714,000
Regional Improvement Funds (RIF)	0	0	3,991,000	0	0	0	0	3,991,000
State and Local Transportation Partnership	0	0	1,300,000	0	0	0	0	1,300,000
AB664	400,000	0	0	0	0	0	0	400,000
Proposition B	0	0	0	512,000	0	268,000	0	780,000
SFMRIC	366,000	0	0	0	0	0	0	366,000
Totals:	18,193,000	425,000	5,291,000	512,000	0	268,000	0	24,689,000
ANNUAL FUNDING OVERAGE:	18,193,000	-1,075,000	-2,209,000	-6,988,000	0	268,000	0	8,189,000
CUMULATIVE FUNDING OVERAGE:	18,193,000	17,118,000	14,909,000	7,921,000	7,921,000	8,189,000	8,189,000	

Cost Funding Matrix

773 Bicycle Racks - Embarcadero (1000 Bicycle Capacity   Sponsor: PORT

Cost/Funding Item	FY Previous	FY 2000/01	FY OutYear	Totals
COST				
Procurement	0	85,000	0	85,000
Totals:	**0**	**85,000**	**0**	**85,000**
FUNDING				
AB434-Regional	0	85,000	0	85,000
Totals:	**0**	**85,000**	**0**	**85,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

809 China Basin Ferry Landing Sponsor: PORT

Cost/Funding Item	FY Previous	FY 1998/99	FY OutYear	Totals
COST				
Construction	0	2,600,000	0	2,600,000
Totals:	0	2,600,000	0	2,600,000
FUNDING				
Ferry Boat Discretionary Program (Sec 106	0	2,000,000	0	2,000,000
Other Local	0	600,000	0	600,000
Totals:	**0**	**2,600,000**	**0**	**2,600,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	

Cost Funding Matrix

814 Illinois Street Intermodal Bridge   Sponsor: PORT

Cost/Funding Item	FY Previous	FY 2000/01	FY 2001/02	FY 2002/03	FY OutYear	Totals
COST						
Design	0	500,000	500,000	0	0	1,000,000
Construction	0	0	0	6,100,000	0	6,100,000
Totals:	**0**	**500,000**	**500,000**	**6,100,000**	**0**	**7,100,000**
FUNDING						
Regional Improvement Funds (RIF)	0	500,000	500,000	3,000,000	0	4,000,000
Other Local	0	0	0	3,100,000	0	3,100,000
Totals:	**0**	**500,000**	**500,000**	**6,100,000**	**0**	**7,100,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**	

Cost Funding Matrix

807 Pier 43 Ferry Arch   Sponsor: PORT

Cost/Funding Item	FY Previous	FY 1999/00	FY 2000/01	FY OutYear	Totals
COST					
Design	0	235,000	0	0	235,000
Construction	0	1,165,000	255,000	0	1,420,000
Totals:	0	1,400,000	255,000	0	1,655,000
FUNDING					
Transportation Enhancement (TEA)	0	255,000	255,000	0	510,000
Other Local	0	1,145,000	0	0	1,145,000
Totals:	**0**	**1,400,000**	**255,000**	**0**	**1,655,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	**0**	**0**	

Cost Funding Matrix

772 CNG Vehicle Demonstration - 5 Shuttle Buses   Sponsor: Presidio Trust

Cost/Funding Item	FY 2000/01	Totals
COST		
Procurement	175,000	175,000
Totals:	175,000	175,000
FUNDING		
AB434-Regional	175,000	175,000
Totals:	175,000	175,000
ANNUAL FUNDING OVERAGE:	0	0
CUMULATIVE FUNDING OVERAGE:	0	

Cost Funding Matrix

770 Electric Car-Sharing Program   Sponsor: Presidio Trust

Cost/Funding Item	FY 2000/01	Totals
Procurement	120,000	120,000
Totals:	**120,000**	**120,000**
AB434	120,000	120,000
Totals:	**120,000**	**120,000**
ANNUAL FUNDING OVERAGE:	0	0

Cost Funding Matrix

771 Electric Charging Station   Sponsor: Presidio Trust

Cost/Funding Item	FY 2000/01	Totals
COST		
Procurement	30,000	30,000
Totals:	**30,000**	**30,000**
FUNDING		
AB434	30,000	30,000
Totals:	**30,000**	**30,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	

Cost Funding Matrix

648 Doyle Drive Environmental and Design Study   Sponsor: SFCTA

Cost/Funding Item	FY 2000/01	FY 2001/02	Totals
Environmental	0	10,200,000	10,200,000
Totals:	**0**	**10,200,000**	**10,200,000**
PLH - Federal	7,200,000	0	7,200,000
Traffic Congestion Relief Program (TCRP)	0	3,000,000	3,000,000
Totals:	**7,200,000**	**3,000,000**	**10,200,000**
ANNUAL FUNDING OVERAGE:	**7,200,000**	**-7,200,000**	**0**

Cost Funding Matrix

647 Doyle Drive Reconstruction   Sponsor: SFCTA

Cost/Funding Item	FY 2002/03	FY 2005/06	Totals
COST			
Design	48,000,000	0	48,000,000
Construction	0	541,800,000	541,800,000
Totals:	**48,000,000**	**541,800,000**	**589,800,000**
FUNDING			
Other Federal	0	192,800,000	192,800,000
Regional Improvement Program (RIP)	8,000,000	0	8,000,000
State Highway Operation & Protection Prg	0	40,000,000	40,000,000
Traffic Congestion Relief Program (TCRP)	12,000,000	0	12,000,000
ITIP - State	28,000,000	117,000,000	145,000,000
Other Local	0	142,000,000	142,000,000
Reauthorization of Prop B - Future Source	0	50,000,000	50,000,000
Totals:	**48,000,000**	**541,800,000**	**589,800,000**
ANNUAL FUNDING OVERAGE:	**0**	**0**	**0**
CUMULATIVE FUNDING OVERAGE:	**0**	**0**	

Draft 2001 Regional Transportation Plan includes further project development (i.e., PS&E) for Doyle Drive in the fiscally constrained Track 1.

Cost Funding Matrix

812 Project Planning, Programming & Monitoring   Sponsor: SFCTA

Cost/Funding Item	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	Totals
COST					
Construction	52,235	52,235	58,000	59,000	221,470
Totals:	52,235	52,235	58,000	59,000	221,470
FUNDING					
Regional Improvement Funds (RIF)	52,235	52,235	58,000	59,000	221,470
Totals:	52,235	52,235	58,000	59,000	221,470
ANNUAL FUNDING OVERAGE:	0	0	0	0	0
CUMULATIVE FUNDING OVERAGE:	0	0	0	0	

APPENDIX IX

Glossary of CMP Related Terms

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GLOSSARY OF CMP RELATED TERMS

Association of Bay Area Governments - (ABAG)	The regional agency that is responsible for regional planning other than for transportation. ABAG publishes forecasts of projected growth for the region.
Air Quality Attainment Plan	The plan for attainment of state air quality standards, as required by the California Clean Air Act of 1988. It is adopted by air quality districts and subject to approval by the State Air Resources Board.
Average Daily Traffic (ADT)	The average number of vehicles passing a specified point during a 24 hour period.
Bay Area Air Quality Management District - (BAAQMD)	The regional agency which adopts and enforces regulations to achieve and maintain state and federal air quality standards in the nine county Bay Area.
California State Department of Transportation (Caltrans)	Responsible, as the Department owner/operator of the state highway system for its safe proposed operation and maintenance. Proposes projects for Intercity Rail, Interregional Roads, and sound walls in the PSTIP. Also responsible for the HSOPP, Toll Bridge, and Aeronautics programs. The TSM and State/Local Partnership Programs are administered by Caltrans. Caltrans is the implementing agency for most state highway projects, regardless of program, and for the Intercity Rail Program.

Capital Improvement Program (CIP)	As used in this document: A seven year program of projects to maintain or improve the traffic level of service and transit performance standards developed by the CMP.
Capital Priorites	A process used by MTC to evaluate and prioritize transit projects in the region. All sources of transit funding, including UMTA grants, state programs, and other sources are considered. This process involves all of the transit operators in the region, including bus, rail, and ferries.
Congestion Management Agency (CMA)	The agency responsible for developing the Congestion Management Program and coordinating and monitoring its implementation.
Congestion Management Program (CMP)	A Legislatively required county-wide program which addresses congestion problems.
Flexible Congestion Relief (FCR)	One of the state funding programs for local or regional transportation projects that will reduce congestion. State highway projects, local roads, and rail guideway projects are all eligible for FCR funds.
Highway System Operation Protection Plan - (HSOPP)	A program created by state and legislation that includes projects related to state highway safety and rehabilitation, seismic safety, and traffic operational improvements. HSOPP is a four year program of projects adopted separately from the STIP.

Level of Service - (LOS)	A qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time. Expressed in range of A through F, with F being the worst.
Model	A mathematical description of a real-life situation that uses data on past and present conditions to make a projection about the future.
Model - Land Use	A model used to predict the future spatial allocation of urban activities (land use), given total regional growth, the future transportation system, and other factors.
Model - Traffic	A mathematical equation or graphic technique used to simulate and predicts traffic movements, particularly those in urban areas or on a freeway.
Peak - (Peak Period, Rush Hours)	1. The period during which the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. 2. The period when demand for transportation service is the heaviest.

Principal Arterial	A functional classification system which defines a street or roadway in terms of the nature and composition of travel. Principal arterials derive their importance from service to rural oriented traffic, but equally or even more importantly, from service for major movements within the urbanized area. The principal arterial system carries the major portion of trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. The US Department of Transportation provides the guidance that 40-65% of the VMT should be accounted for on the principal arterial system.
Proposed State Transportation Improvement Program - (PSTIP)	This seven year program is based on the adopted STIP and the most recent Project Delivery Report. It is developed by Caltrans for CTC approval and includes projects developed through the IRRS, Intercity Rail, Sound Wall, Toll Bridge, and Aeronautics programs.
Proposition 116	Passed by the voters in June of 1990, this initiative sponsored by the Planning and Conservation League provides $1.9B in rail bonds, primarily to projects specified in the legislation.

Regional Transportation Improvement Program - (RTIP)

A list of proposed transportation projects submitted to the CTC by the regional transportation planning agency, as a request for state funding through the FCR and Urban and Commuter Rail Programs. The individual projects are first proposed by local jurisdictions (CMAs in urbanized counties), then evaluated and prioritized by the MTC for submission to the CTC. The RTIP has a seven year planning horizon, and is updated every two years.

Regional Transportation Plan - (RTP)

A comprehensive 20 year plan for the region, updated every two years by the regional transportation planning agency. The RTP includes goals, objectives, and policies, and recommends specific transportation improvements.

Regional Transportation Planning Agency - (RTPA)

The agency responsible for the preparation of RTPs and RTIPs and designated by the State Business Transportation and Housing Agency to allocate transit funds. RTPAs can be local transportation commissions, council of governments, metropolitan planning organizations, or statutorily created agencies. MTC is the RTPA for the nine county Bay Area.

Short Range Transit Plan (SRTP)

A five year comprehensive plan required by UMTA for all transit operators receiving federal funds. The plans establish the operator's goals, policies, objectives; analyzes current and past performance, and describes short term operational and capital improvement plans.

State Implemention Plan - (SIP)	State plan required by the Federal Clean Air Act of 1990 to attain and maintain national ambient air quality standards. It is adopted by local air quality districts and the State Air Resources Board.
Transportation Control Measure - (TCM)	A measure intended to reduce pollutant emissions from motor vehicles. Examples of TCMs include programs to encourage ridesharing or public transit usage, city or county trip reduction ordinances, and the use of cleaner burning fuels in motor vehicles.
Transportation Demand Management - (TDM)	Demand based techniques for reducing traffic congestion, such as ridesharing programs and flexible work schedules enabling employees to commute to and from work outside of peak hours.
Transportation System Management - (TSM)	That part of the urban transportation planning process undertaken to improve the efficiency of the existing transportation system. The intent is to make better use of the existing transportation improvements that generally cost less and can be implemented more quickly than major capital improvements.
U/C Rail - Urban and Commuter Rail	A state funding program financed by the sales of bonds authorized by Proposition 108. Two additional bond measures to fund this program will be placed in front of the voters in 1992 and 1994. All projects must be matched 50% by local funds. Projects are proposed through the CMP process to regional agencies, which then may include them in their RTIPs.

Transportation Level of Service Definitions,

Level of Service	Description	Volume/Capacity V/C Ratio
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	0 - 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can be generally described as very good.	0.61 - 0.70
C	Level of Service C describes a condition where the approach to an intersection if often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71 - 0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operations can generally be described as fair.	0.81 - 0.90
E	Capacity occurs at Level of Service E. It represents the most number of vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles.	0.91 - 1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01-

Source: Highway Research Board, Highway Capacity Manual, 1965 and Environmental Science Associates Inc.

Urbanized Area

As defined by the Bureau of the Census, a population concentration of at least 50,000 inhabitants, generally consisting of a central city and the surrounding, closely settled, contiguous territory (suburbs). The boundary is based primarily on a population density of 1000 people/mile but also includes some less densely settled areas, as well as such areas as industrial parks and railroad yards, if they are within areas of dense urban development. The boundaries of urbanized areas, the specific criteria used to determine urbanized areas, or both may change in subsequent censuses.

Vehicle Miles of Travel - (VMT)

1. On highways, a measurement of the total miles traveled in all vehicles in the area for a specified time period. It is calculated by the number of vehicles multipled by the miles traveled in a given area or on a given highway during the time period.
2. In transit, the number of vehicle miles operated on a given route or line or network during a specified time period.

Vehicle Occupancy

The number of people aboard a vehicle at a given time; also known as auto or automobile occupancy when the reference is to automobile travel only.

Vehicle Trip

A one-way movement of a vehicle between two points.

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